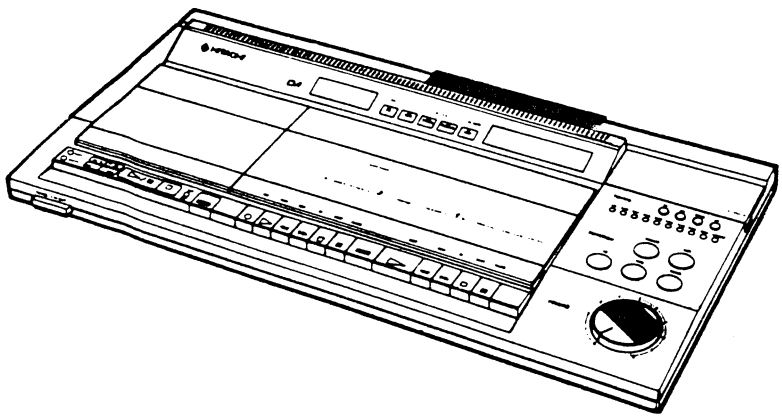
HITACHI
SERVICE MANUAL

TY | No. 515 E

MX-W01
(US,CS,ES,VS,BK,SA,KS,ZS,EW)

TAPE1 : TN-21H-581(PLAY)
TAPE2 : TN-21H-580(REC/PLAY)



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CD Slimline System

CAUTION
Invisible laser radiation when open interlocks failed or defeated. AVOID DIRECT EXPOSURE TO BEAM.

VARNING
När apparaten öpponats och skyddsanordningen eller satts ur funktion förekommer osynlig laserstrålning. UNDVIK DIREKT BESTRÅLNING.

ADVARSEL
Når apparatet åbnes og beskyttelsesanordningen ikke virker eller sættes un af funktion, forekommer der usynlig laserståling. UNDGÅ DIREKTE BESTRÅLING.

ADVARSEL
Når denne delen er åpen som følge av at låsen er utkoplet eller ikke fungerer, eksisterer det usynlig laserstråling.UNNGÅ Å BLI UTSATT FOR DIREKTE BESTRÅLING!

VAROITUS
Laite lähettää näkymätöntä lasersäteliyä, kun se avataan ja kun sisäiset turvalukot eivät toimi. VARO JOUTUMASTA ALTTIIKSI SÄTEILYLLE.

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safely related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with ⚠ in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

STEREO CASSETTE RECEIVER/COMPACT DISC PLAYER

July 1986 TOYOKAWA WORKS

SPECIFICATIONS

GENERAL

Power supply: AC 120V, 60 Hz (CS)
AC 220V, 50 Hz (ES, VS, KS, ZS)
AC 240V, 50 Hz (BK, SA)
AC 110 – 120V/200 – 220V /230 – 240V, 50/60 Hz (US, EW)

Power consumption: 150W
Dimensions: 590(W) x 81(H) x 311(D) mm
Weight: 6.0 kg
Supplied accessories:
AM loop antenna . . . . . (1)
FM lead antenna . . . . . (1)
(except ZS)
Auxiliary leg attachment . . . . . (2)

AMPLIFIER SECTION

Power output: 25 W/ch*, min. RMS, at 8 ohms from
(Both channels driven) 70 Hz to 15 kHz, with less than 0.9%, total harmonic distortion.

* Measured pursuant to the Federal Trade commision's Trade Regulation Rule on Power output claims for Amplifiers.

30 W/ch + 30 W/ch (8 ohms, 1 kHz, T. H. D. 0.7% SINUS)
30 W/ch + 30 W/ch (8 ohms, 1 kHz, T. H. D. 0.7%)

Total harmonic distortion: 0.5% (at 1/2 power output)

Input sensitivity/ impedance: PHONO: 6 mV/50 kohms
AUX: 400 mV/25 kohms

Load impedance: Speaker: 8 ~ 16 ohms
Headphones: more than 8 ohms

S/N ratio (IHF A network): PHONO: 73 dB
AUX: 87 dB

TUNER SECTION

Reception frequency: FM: 87.5 – 108.0 MHz (except US, EW)
87.9 – 107.9 MHz (for US, EW)
AM (MW): 522 – 1,611 kHz (9 kHz spacing)
530 – 1,620 kHz (10 kHz spacing) (for US, EW)
LW: 146 – 353 kHz (for ES, VS, BK)

Sensitivity: FM: 1.6 μV (75 ohms, S/N ratio 26 dB, 40 kHz Dev.)
AM (MW): 600 μV/m (S/N ratio 20 dB, 400 Hz, 30% mod.)
LW: 2.5 mV/m (S/N ratio 20 dB, 400 Hz, 30% mod.) (for ES, VS, BK)

S/N ratio: FM: 70 dB (mono), 68 dB (stereo)
AM (MW): 42 dB
LW: 40 dB (for ES, VS, BK)

FM selectivity: 28 dB (± 300 kHz)
Stereo separation: 40 dB (1 kHz)
Antennas: FM: Lead antenna or external antenna (75 ohms, unbalanced)
AM (MW/LW): Loop antenna or external antenna

TAPE DECK SECTION

Track system: 4 track 2 channel stereo
Recording system: AC bias
Tape: Normal, Chrome/Metal
Frequency response: Normal 40 to 13,000 Hz
CrO_2 40 to 14,000 Hz
Metal 40 to 15,000 Hz

CD PLAYER SECTION

Player time: Approx. 60 minutes/one side
Diameter: 120 mm
Sampling frequency: 44.1 kHz
Quantization number: 16 bit linear/channel
Frequency response: 20 to 20,000 Hz

Specifications are subject to change without notice for performance improvement.

DISASSEMBLY

1. Top case (Fig. 1, 2)
Remove ten screws ① and seven screw ② of bottom side. (Fig. 1)
Remove Power button and Volume knob.
Open CD lid and Cassette lid by pushing CD door open button and C door open button. Then the Top case by lifting it upward. (Fig. 2)

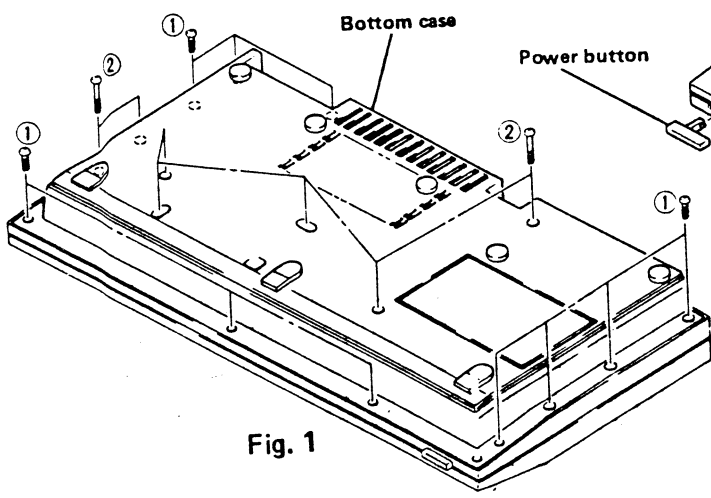


Fig. 1

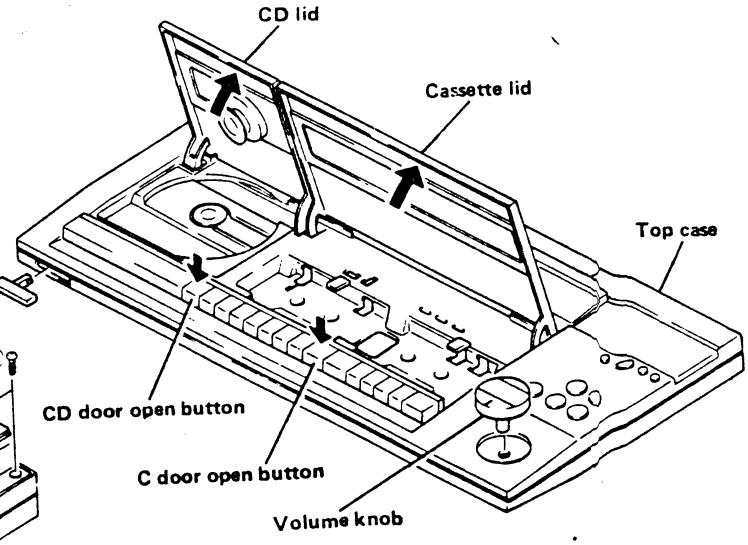


Fig. 2

2. **Function switch P.W.B. (Fig. 3)**
Remove one screw ③ and four connectors Ⓐ, then pull the P.W.B. to the arrow direction and remove it.

3. **FL meter P.W.B. (Fig. 3)**
Remove two screws ④, and eight connectors Ⓑ. Remove the P.W.B. together with P.W.B. holder.

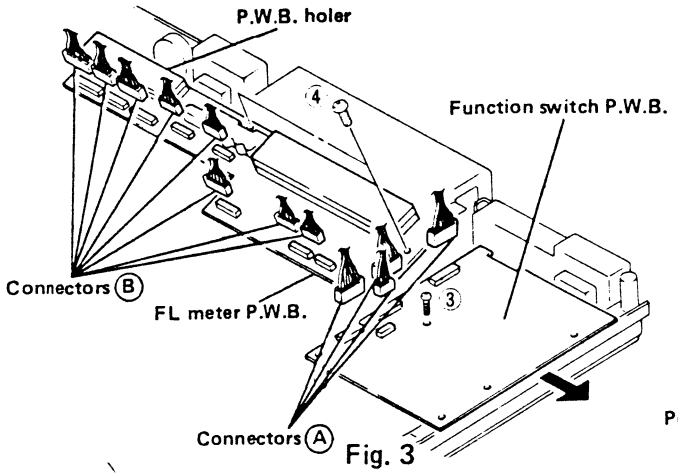


Fig. 3

4. **Cassette chassis (Fig. 4)**
Remove eight screws ⑤ and four connectors.
Remove the Cassette chassis by lifting them upward. (Isolation sheet is removed together with the Cassette chassis.)

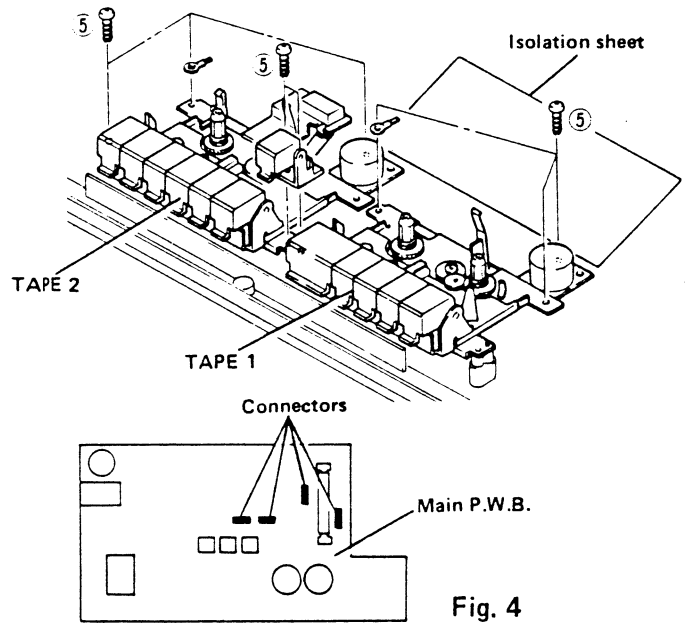


Fig. 4

5. **CD Function switch P.W.B. (Fig. 5)**
Remove Operating button panel by removing one screw ⑥ and then remove three screws ⑦.

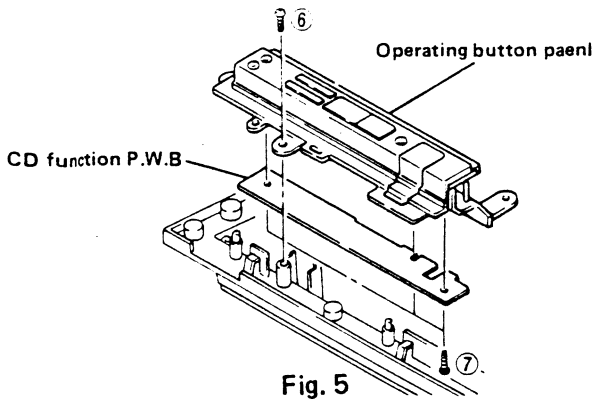


Fig. 5

6. **Power switch P.W.B. (Fig. 6)**
Remove one screw ⑧.

7. **CD switch P.W.B. (Fig. 6)**
Remove two screw ⑨, one screw ⑩ and one connector Ⓒ.

8. **Unit mechanism (Fig. 6)**
Remove three screws ⑪, two connectors Ⓓ and the Flexible P.W.B..

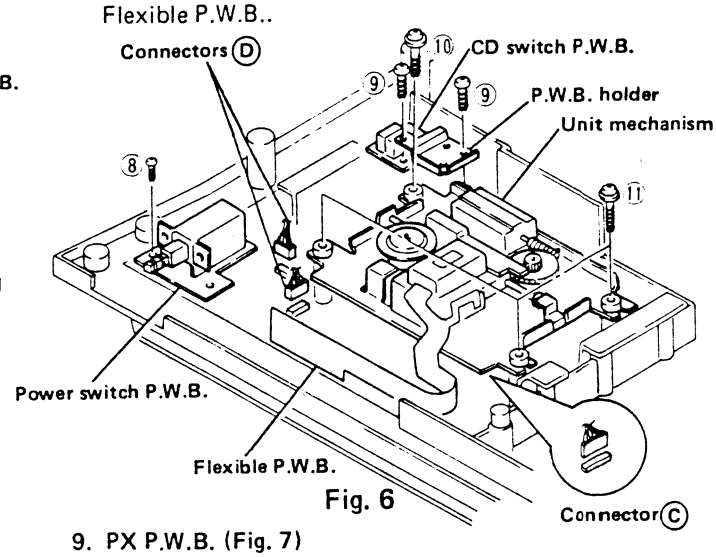


Fig. 6

9. **PX P.W.B. (Fig. 7)**
After removing the P.W.B. holder and CD switch P.W.B. remove two screws ⑫ and remove the P.W.B. by lifting it up to the arrow direction.

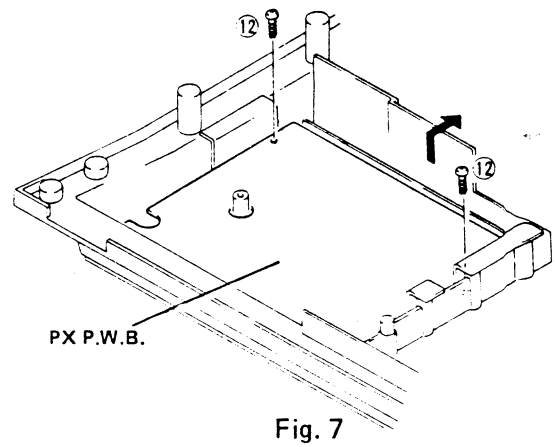


Fig. 7

10. **Main P.W.B. (Fig. 8)**
Remove seventeen screws ⑬ and then remove the P.W.B. by lifting it backward.

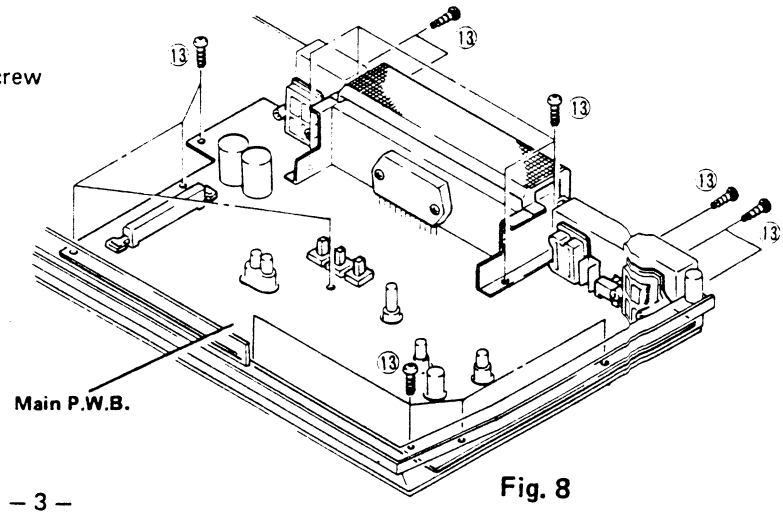


Fig. 8

GENERAL ADJUSTMENT INSTRUCTIONS

• Adjustment points Perform adjustment at least 3 minutes after the power has been switched on.

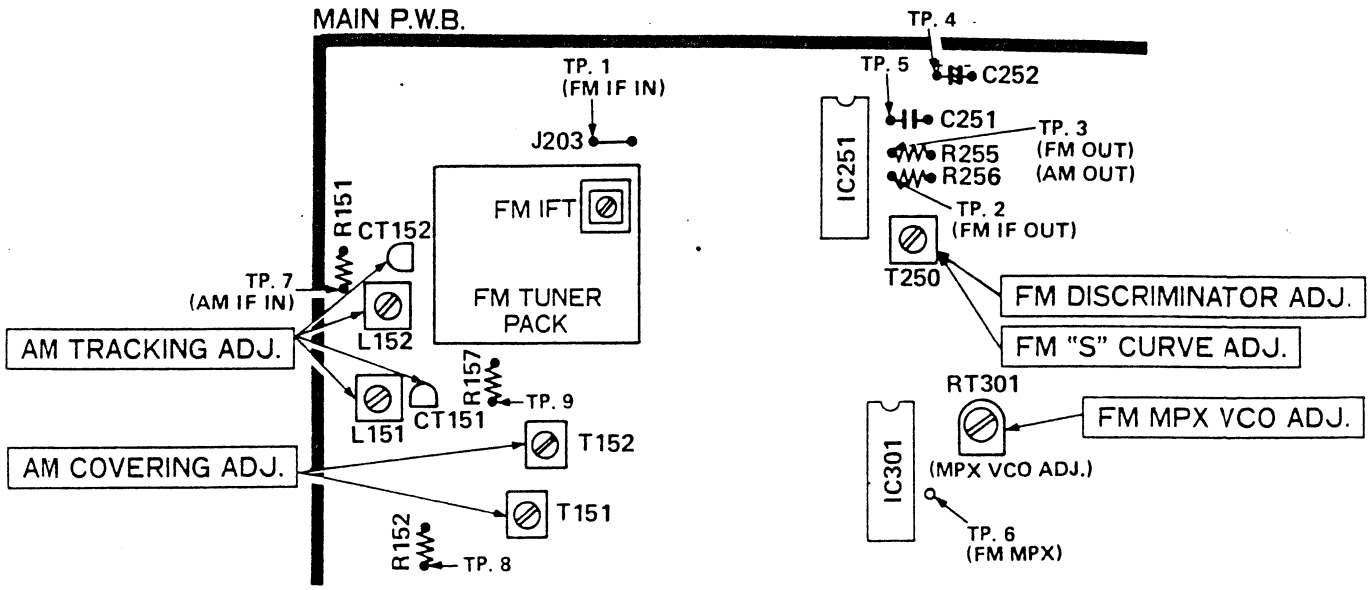


Fig. 9

FM TUNER ADJUSTMENT

FUNCTION : FM VOLUME : MIN FM MODE : MONO

Sweep Generator Signal Generator Oscilloscope DC Null Meter

VTVM Frequency Counter Distortion Meter

Sequence		Connection		Setting		Adjust for	
		Input	Output	Tuning	Signal	Adjust	Indication
1	IF Amp.	TP.1 100k 0.1μ	TP2 100k 0.1μ	–	10.7 MHz	FM IFT	(Note 1)
2	"S" curve		TP.3 100k 0.1μ	–	10.7 MHz	T250	Straight line (Note 2)
3	Discriminator	FM antenna 60dB 400Hz,22.5kHz Dev.	SPEAKERS terminal	98 MHz	98 MHz	T250	(Note 3)
4	MPX VCO	Antenna terminal (75 ohms) 60dB Non Mod.	TP.6 100k	–	–	RT301	19 kHz ±1 00 Hz

Note 1: Apply low-input signals from a sweep generator (with a small amount of noise superimposed on IF waveform as in Fig. 10), and adjust the waveform until it becomes maximum and symmetrical.

Note 2: Cause an S curve to appear on the screen by FM IFT as shown in Fig. 11, and adjust it until points A and B are positioned symmetrically, and the A-B line becomes linear.

Note 3: Connect a DC null meter TP. 4 and TP. 5 then make adjustment until it reads 0 ± 30mV.

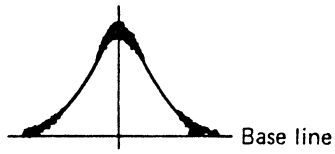


Fig. 10

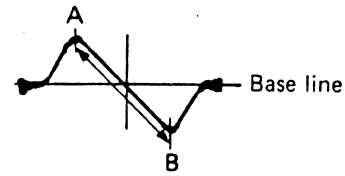


Fig. 11

AM TUNER ADJUSTMENT

FUNCTION : AM
MODULATION : 400Hz 30% Mod.
VOLUME : MIN

Sequence		Connection		Setting		Adjust for	
		Input	Output	Tuning	Signal	Adjust	Indication
1	IF AMP.	TP.7 100k 0.1μ	TP.3 100k 0.1μ	—	450kHz	—	(Note 4)
2	Covering	Loop antenna	TP.8 (MW) TP.9 (LW)	(MW) 530kHz (for US, CS) 522kHz (except US, CS)	—	(MW) T151	1.3V ± 0.1V (for US, CS) 1.2V ± 0.1V (except US, CS) (Note 5)
				(LW) 146kHz	—	(LW) T152	1.2V ± 0.1V (Note 5)
3	Tracking	400Hz 30% Mod.	Audio output	(MW) 603kHz or 600kHz	(MW) 603kHz or 600kHz	L151	V max. (Note 5)
				(LW) 164kHz	(LW) 164kHz	L152	
				(MW) 1404kHz or 1400kHz	(MW) 1404kHz or 1400kHz	CT151	
				(LW) 335kHz	(LW) 335kHz	CT152	

Note 4: Check the waveform shown in Fig. 12 is obtained.

Note 5: At first, set the input level to 75 dB/m. As the adjustment advances, reduce the input level to an allowable minimum level (approx. 60 dB), and repeat the adjustment until the maximum output is obtained at the specified frequency.

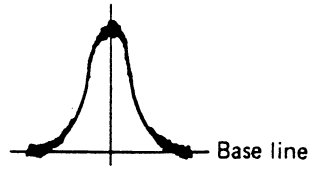


Fig. 12

TAPE DECK ADJUSTMENT

• Adjustment points

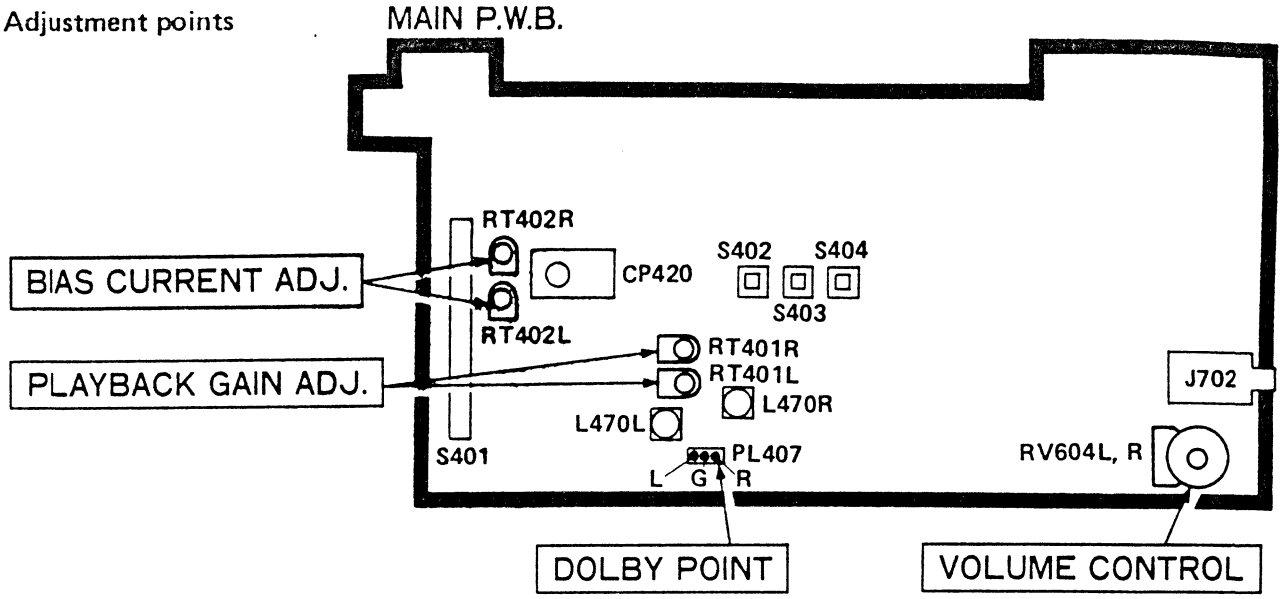


Fig. 13

• **Measuring Instruments**

1. Audio oscillator
2. Electronic Voltmeter
3. Attenuator
4. Frequency counter

• **Jigs, Test and Check Tapes**

1. Head mounting jig
2. 400Hz, Dolby alignment tape
3. 10kHz, azimuth alignment tape
4. 3,000Hz, tape speed alignment tape
5. Mirror tape (for tape running check)
6. NORMAL tape (MAXELL UDI 90)
   METAL tape (MAXELL MX46)

• **Positions of Knobs**

Set the switches and knobs, etc. to the following positions shown in the next table unless otherwise specified.

REC level control (RV604L, R)	MAX
Tape select switch (S402)	(Note 1)
RIF switch (S403)	A
Dolby NR switch (S404)	OFF

Note 1: Change over the tape select switch as shown in the table on the right depending on the tape used.

Tape used	Tape select switches (S402)
No tape used	NOR
Test Tape	NOR
NORMAL tape	NOR
METAL tape	METAL

Peform adjustment by the following procedure after open the cassette lid and cleaning the heads, pressure rollers and capstans with alcohol.

1. Tape Speed Adjustment

Tape	Adjustment value	Adjustment point
Tape speed Alignment tape (3,000 Hz)	3,000 Hz ± 1%	Semi-fixed resistor inside of the motor

Adjustment procedure

Connect the frequency counter to the SPEAKERS terminals apply heat-run for 20 minutes or more. Then playback alignment tape for TAPE 1 and TAPE 2 , and adjust the tape speed to the middle of the tape so that the speed of TAPE 1 and TAPE 2 are equal.

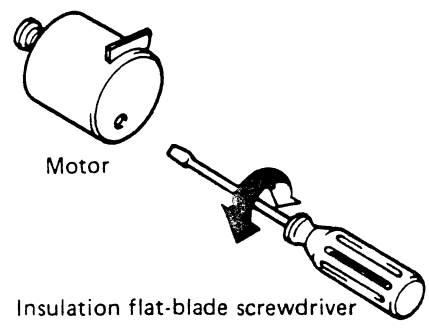


Fig. 14

2. Recording/Playback Head Azimuth Adjustment

Tape	Adjustment value	Adjustment point
Azimuth alignment tape (10 kHz)	Maximum output	Azimuth adjustment screw

Adjustment procedure

Connect the electronic voltmeter to the SPEAKERS terminals, playback the alignment tape to adjust the head azimuth.

When the maximum values differ between both channels, set to the maximum value of the left channel. Check that the difference between the values of both channels is less than 2 dB, and readjust when the difference is greater. After the adjustment, fix the screw with Screw Lock.

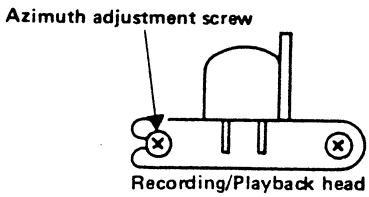


Fig. 15

3. Playback Gain Adjustment

Tape	Adjustment value	Adjustment point
400 Hz Dolby alignment tape	580 mV	RT401L, R

Adjustment procedure

Connect the electronic voltmeter to PL407, then playback the Dolby alignment tape in TAPE 1 and adjust RT401L, R so that the reading of the electronic voltmeter indicates the adjustment value.

Perform the adjustment in the same way for TAPE 2.

(The difference between the values of TAPE 1 and TAPE 2 is less than 2 dB.)

4. Bias current Adjustment and REC/PLAY Output level adjustment

Set RT402L,R in the center position and record at the recording level shown in the table below to adjust for each tape, then check the piayback level.

Order	Tape	Tape select switch	Recording level			Playback level		Adjustment procedure
			Frequency (Hz)	Level	Adjustment point	Level	Adjustment point	
1	NORMAL tape	NOR	400/10k	580mV −25dB	ATT	Within ±1.5dB	RT402L, R	(1)
2	NORMAL tape	NOR	400	−10dB	ATT	580mV −10 ± 2dB	To check	(2)
3	NORMAL tape	NOR	400/10k	580mV −25dB	ATT	Within ±1.5dB	To check	(1)
4	METAL tape	METAL	400/10k	580mV −25dB	ATT	Within ±3dB	To check	(1)

Adjustment procedure

(1) Bias Current Adjustment

1) Connect the audio oscillator to the AUX IN terminals via the attenuator and set the unit to the record mode. Adjust the output of the audio oscillator so that the meter indicates 0 dB. Then, adjust the attenuator to set it to 580 mV −25 dB. (Frequency: 400 Hz)

2) Record in this state, and then set the frequency of the audio oscillator to 10 kHz and record it.

3) Playback the recorded section, read the output and check that the output difference between the two frequencies is within ±1.5 dB. In this case, make adjustment so that the output at 10 kHz is sure to be greater than that at 400 Hz.

4) When the output difference is out of within ± 1.5 dB range, adjust RT402L, R properly and repeat recording/playback so that the output difference is within ± 1.5 dB.

*Perform checking only for METAL tape, but when the output is not within the specified ±3 dB, perform adjustment using NORMAL tape again.

(2) REC/PLAY Output Level Adjustment

1) Connect the audio oscillator to the AUX IN terminals to input 400 Hz signal and set the unit to the record mode.
Adjust the output of the audio oscillator so that the reading of the electronic voltmeter connected to the SPEAKERS terminals, is −10 dB, and perform recording.

2) Playback the recorded section and check that the output is 580 mV −10 ±2 dB.

5. Cassette Chassis Checking and Adjustment

No.	Inspection Item	Reference Value	Remarks
1.	Pressure roller compression strength	300 – 500 g	(Note 1) Tension gage
2.	Playback torque	30 – 60 g	Cassettepack system Torque meter
3.	FF/REW torque	more than 50 g·cm	Cassettepack system Torque meter
4.	Take up back-tension	2.0 – 6.0 g·cm	Cassettepack system Torque meter
5.	Tape drive force	more than 120 g	
6.	Axial play of flywheel	0.05 – 0.5 mm	

Note 1: Pressure roller compression strength

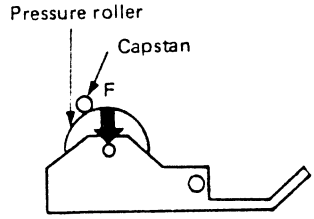


Fig. 16

LUBRICATION

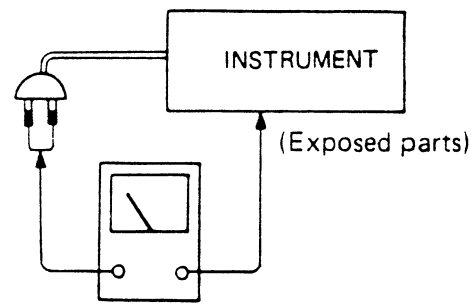
Lubricate 1 or 2 drops of Pan-motor or sonic slider oil to the rotating parts and apply Hitasol or White grease to the rubbing parts.
Lubrication is performed once a year or once for every 1,000 hours under normal usage conditions.
Be careful so that oil does not adhere to the belt or Pressure roller, etc.

Rotating sections	Metal and metal	Pan-motor oil (10W-40)
	Mold and metal	Sonic Slide Oil (#1600)
Rubbing sections	Metal and metal	Hitasol (MO–138)
	Mold and mold, mold and metal	White grease (FL-LUBE-A)

Check that exposed parts are acceptably insulated from the supply circuit before returning the instrument repaired to the customer.

- **Checking method**

  Power switch is set to ON.
  Next, measure the resistance value between the both poles of attachement cup (Power supply plug) and the AUX IN JACK of rear plate and check that the resistance value is 500 kohms or more.



Insulation tester (DC500V)

1. Checking the object lens (Fig. 17)

Take care not to dirty the object lens of the lens actuator. When the unit is not used for a long time, the lens sometimes becomes dirty. Clean the lens with a cotton swab.

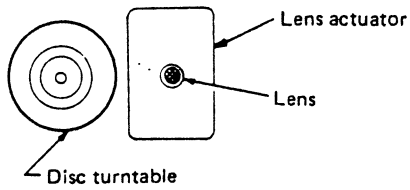


Fig. 17

2. Checking the laser

The laser unit operates on 40 – 80 mA current. If the laser operation current in the circuit exceeds 100 mA, the laser may be defective.

3. Precautions on repair service

(1) Semiconductor laser (Fig. 18)

The semiconductor laser requires more attention to electrostatic breakdown or surge current. Be very careful not to touch the terminals of the semiconductor laser and those of the flexible P.W.B. by hand or with a tool.

The current – light intensity characteristic became sharp abruptly after passing the threshold value as shown in Fig. 18. The threshold current value is a little different in each laser unit. Therefore, when setting the laser beam amount after replacing the unit mechanism, be sure to turn the control variable resistor R905 fully counterclockwise to set it off once, and then increase the level to the specified value.

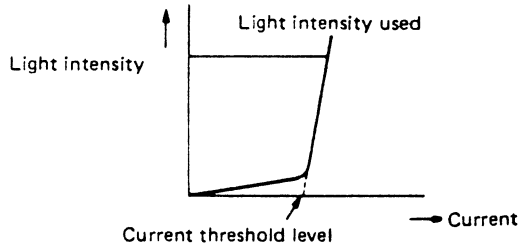


Fig. 18

(2) Notes on handling the unit mechanism (Fig. 19)

When handling the pick-up mechanism or unit mechanism, use the ground ring as shown is Fig. 19.

(The ground ring can be made using normal lead wire.)

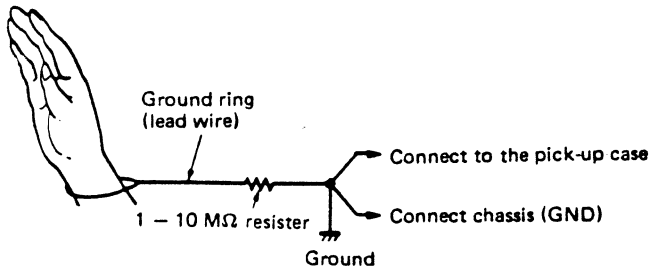


Fig. 19

(3) Precaution in replacing parts.

[1] Protective sheets are stuck to the service parts of the unit mechanism. Never remove these sheets prior to the completion of assembly.

[2] If the lead terminals of the slide motor are overheated due to soldering etc., it may cause a fault in the slide motor. Therfore, be sure to unsolder the leads on the P.W.B. side during replacement.

[3] When installing the unit mechanism, apply one drop of alcohole to the grommets to facilitate unit mechanism installation.

Fully tighten the screws. If the screws are loose, the disc tracking performance may be degraded. (Fig. 20)

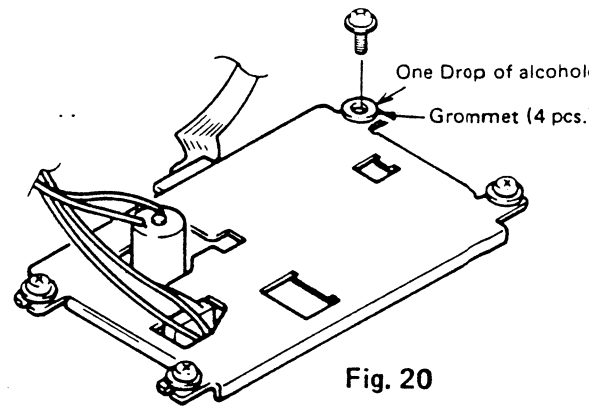


Fig. 20

[4] When installing the DC motor assembly, take care not to damage the worm gear.

After installation, check the play between the worm gear and send gear. If there is no play move the DC motor assembly outward. (Fig. 21)

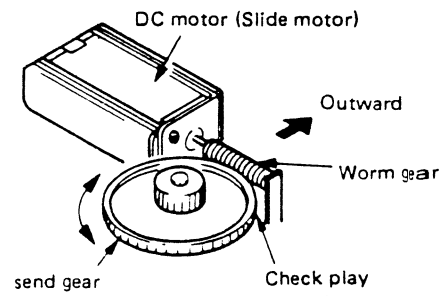


Fig. 21

[5] When replacing the DC motor (disc motor), turntable, or center pin, proceed as follows.

lows.

1) Remove the turntable fixing screw (hex. hole set screw). Apply the soldering iron to the turntable fixing screw hole for about 1 minute and pull out the center pin in the direction of arrow A (vertical to the unit plate).
2) When installing the turntable, adjust its height with the height adjusting jig. At this time, take care not to apply excessive force to the DC motor shaft.
3) When replacing the DC motor, take care not to apply excessive force in the direction of arrow B.

Doing so may deform unit plateC, resulting in deteriorated eye pattern. (Fig. 22)

4) Press in the center pin into the DC motor shaft so that the shaft tip is aligned with the center pin tip. (Fig. 23)

Note: Once the center pin is removed, do not reuse it.

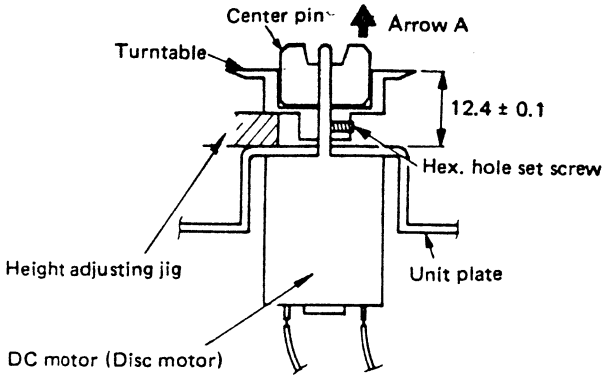


Fig. 22

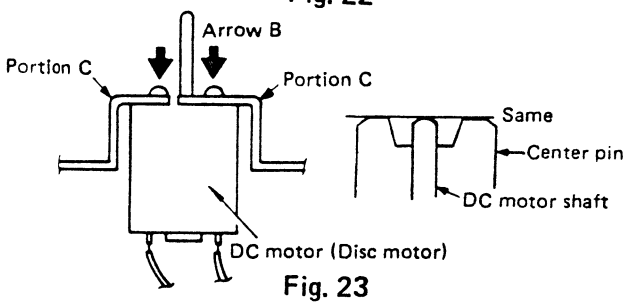


Fig. 23

4. Checking the actuator

Check the resistance values of the actuator coils.
They are normal if the resistance values meet the following values.

Focus coil: 30 ohms
Tracking coil: 10 ohms

If any coil is open or short circuited, the actuator may be defective. Check that the lens moves with 1.5V battery. (Fig. 24)

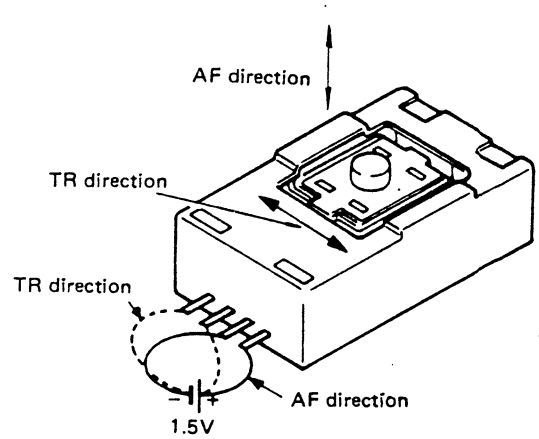


Fig. 24

CD PLAYER CIRCUIT ADJUSTMENT

When you have made the following work (1) or (2), be sure to perform adjustment 1 – 4.

(1) Disassembly of the unit mechanism and replacement of parts.
(2) Replacement of parts of the pickup part.

■ **Adjustment of circuit**
Preset each control before making adjustment.

● Presetting

Adjustment	Circuit No.	Preset position
Laser diode output	R905	Center
Focus servo offset	R908	Center
Tracking servo offset	R914	Center

Adjustment should be made in the following sequence.

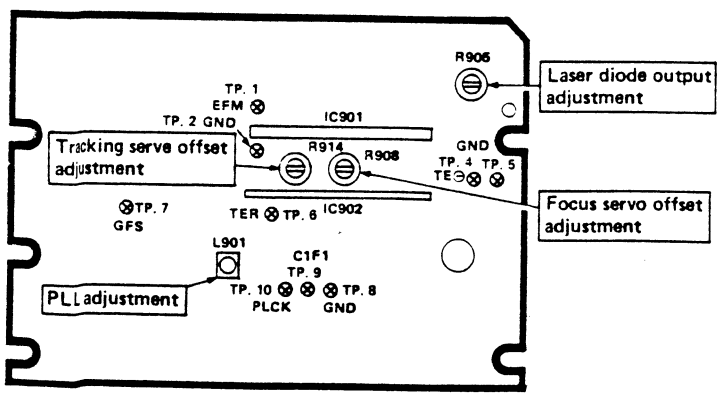


Fig. 25

1. **Adjustment of laser diode output**

Do not perform this adjustment except when the pickup mechanism or laser circuit is replaced.

(1) Instrument to be used

● Oscilloscope.

(2) Adjusting procedure

[1] Connect the oscilloscope to TP.1 (EFM) and TP.2 (GND). (Fig. 26)
[2] Load a disc in the player, and set the player to play mode.
[3] Adjust R905 so that the EFM signal level becomes 1.3V ± 40mV.

Note: (Fig. 27)
However if the signal level is in range of 1.1V – 1.5V, it is normal and no adjustment is necessary.

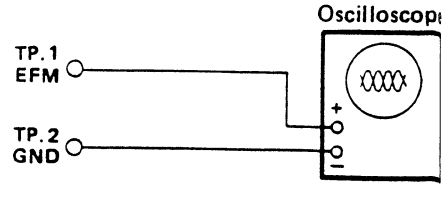


Fig. 26

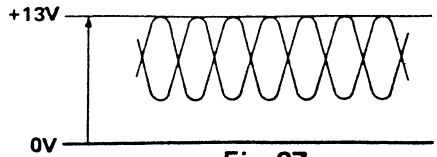


Fig. 27

2. Adjustment of focus servo offset

(1) Instrument to be used

- Oscilloscope
- DC Voltmeter

(2) Adjusting procedure

[1] Set the player to stop mode.

[2] Connect the oscilloscope to TP.1 (EFM) and TP.2 (GND).

[3] Connect the DC voltmeter as shown in Fig.28

[4] Load a disc in the player, and set the player to play mode.

[5] Adjust R908 so that the EFM signal amplitude becomes maximum.

[6] After adjustment, check that the center voltage of the R908 is 2 – 3 V with a DC voltmeter.

[7] If the center voltage is not within the specified value, readjust as follows.

Less than 2V: Set to 2V.

More than 3V: Set to 3V.

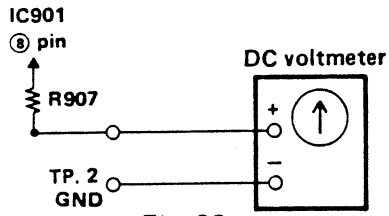


Fig. 28

3. Adjustment of tracking servo offset

(1) Instrument to be used

DC voltmeter

(2) Adjusting procedure

[1] Connect the DC voltmeter to TP.6 (TER). (Fig. 29)

[2] Put the set in stop mode.

[3] Adjust R914 so that the DC voltmeter indicates +10 mV ± 2 mV.

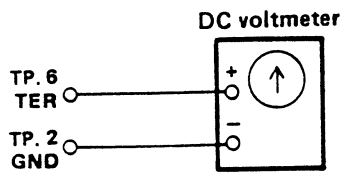


Fig. 29

4. Adjusting PLL

Do not make adjustment except when any parts in the PLL block has been replaced.

(1) Instrument to be used

- Frequency counter
- Oscilloscope

(2) Adjusting preparation

Connect the above instruments as shown in Fig. 31.

(3) Adjusting procedure

[1] Preset L901 so that the frequency at TP.10 (PLCK) is 4,500 ± 50 kHz with the set stopped.

[2] Put the set in play mode. Turn L901 clockwise (in the core entering direction) until the level of TP.7 (GFS) goes low. Then, turn L901 counterclockwise (in the core pulling direction) and find the position where the level goes high.

[3] Put the set in stop mode and read the frequency (f1) of TP.10 (PLCK).

[4] Put the set in play mode. Turn L901 counterclockwise until the level of TP.7 (GFS) goes low. Then, turn L901 clockwise and find the position where the level goes high.

[5] Put the set in stop mode and read the frequency (f2) at TP.10 (PLCK).

[6] Adjust L901 so that the frequency at TP.10 is (f1 + f2) x 1/2.

(4) checking of operation

After making adjustments [1] through [6] above and put the set in play mode. Check that the frequency at TP. 10 (PLCK) is 4,321.8 ± 400 kHz. Ascertain that the waveform at TP. 7 (GFS) exactly as shown in Fig.30. The level at TP. 7 (GFS) may happen to be low.

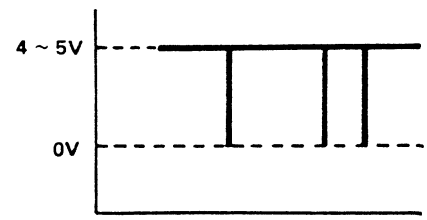


Fig. 30

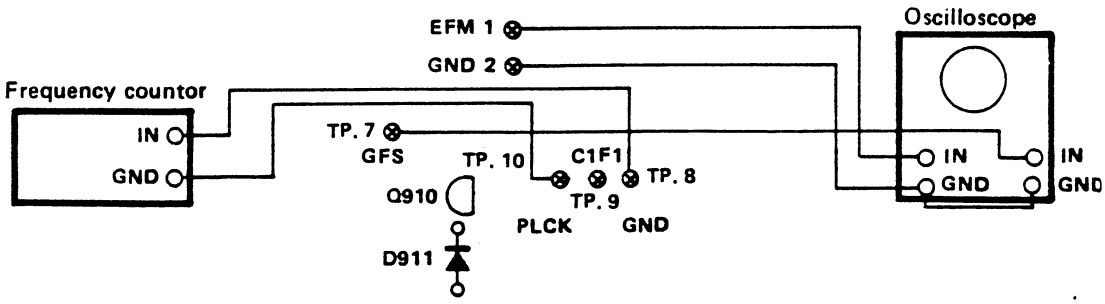


Fig. 31

WARNING LABEL

CAUTION-INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.

AVOID EXPOSURE-LASER RADIATION IS EMITTED FROM THIS APERTURE.

For Europe and Australia, etc.

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

KS Only

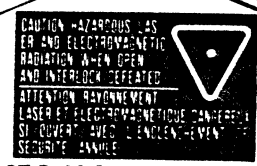
EXPLANATORY LABEL ON REAR-SIDE

CLASS 1 LASER PRODUCT

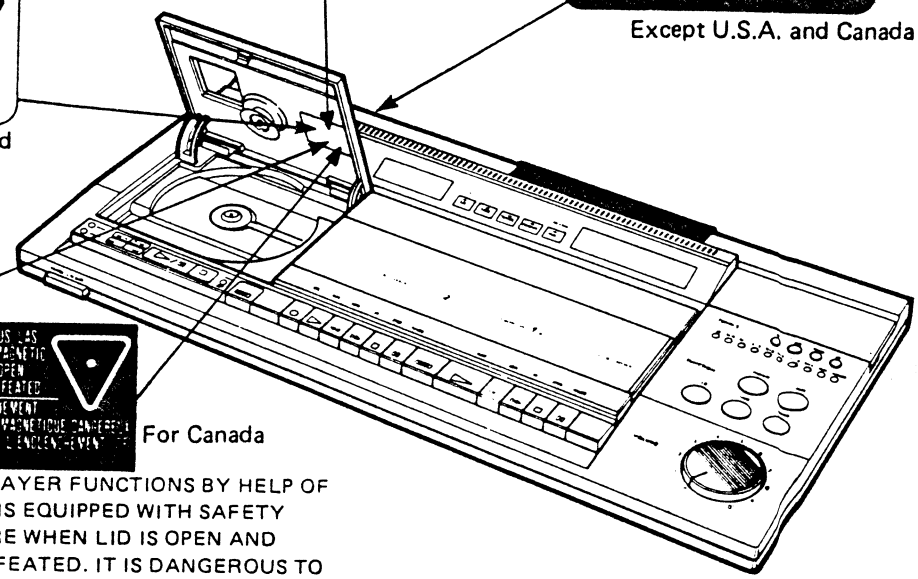
Except U.S.A. and Canada

DANGER Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM.

For U.S.A.



For Canada



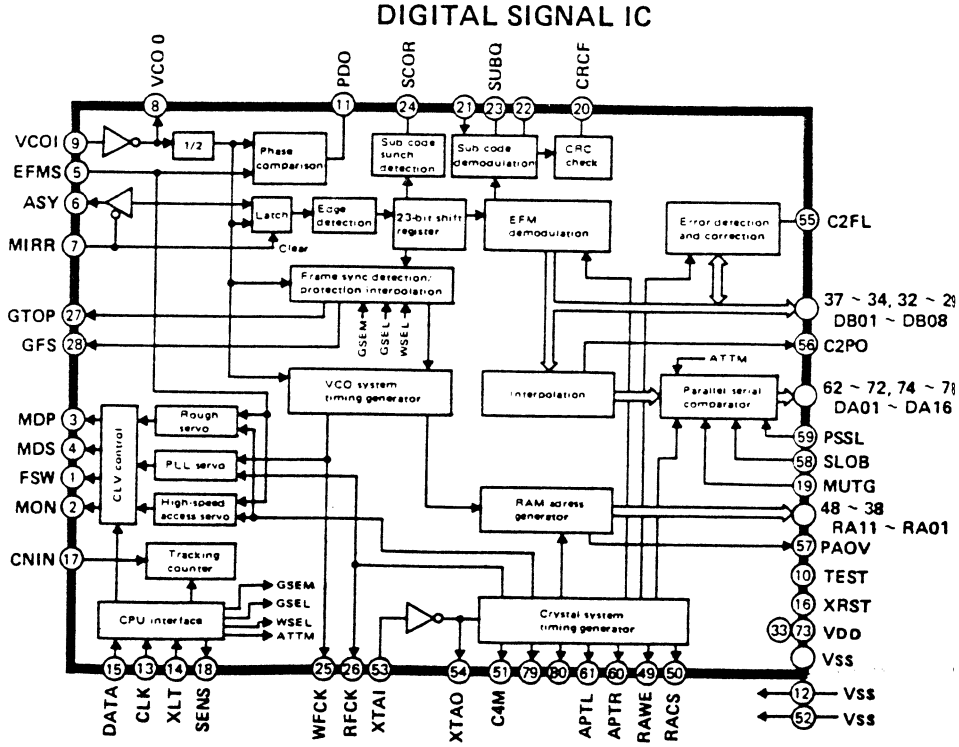
THIS LASER COMPACT DISC PLAYER FUNCTIONS BY HELP OF INVISIBLE LASER LIGHT AND IS EQUIPPED WITH SAFETY SWITCHES TO AVOID EXPOSURE WHEN LID IS OPEN AND SAFETY INTERLOCKS ARE DEFEATED. IT IS DANGEROUS TO SET SAFETYSWITCHES OUT OF FUNCTION.
THERE ARE NO USER'S SERVICEABLE PARTS INSIDE THE UNIT, LEAVE ALL SERVICE TO QUALIFIED SERVICE PERSONNEL.

Inside of the set is a laser component emitting a laser radiation over the limit for laser class 1.

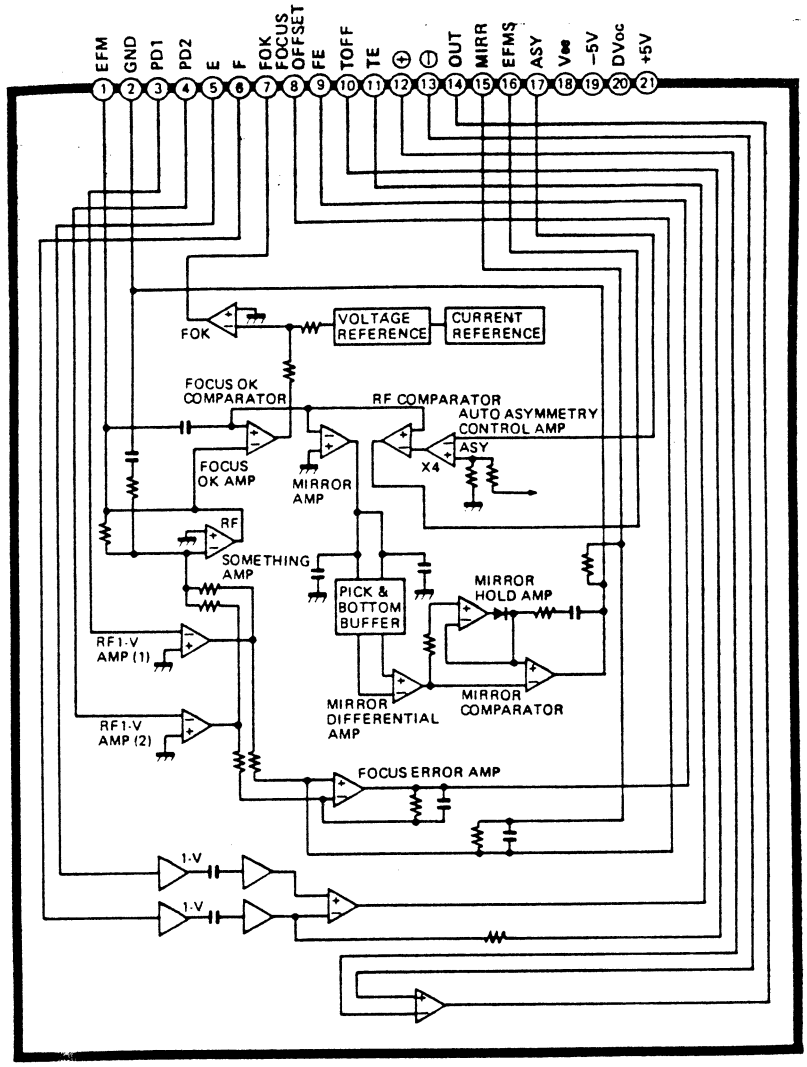
Inuti apparaten finns en laserkomponent som avger laserstrålning över gränsen för laser klass 1.

IC INTERNAL BLOCK DIAGRAM

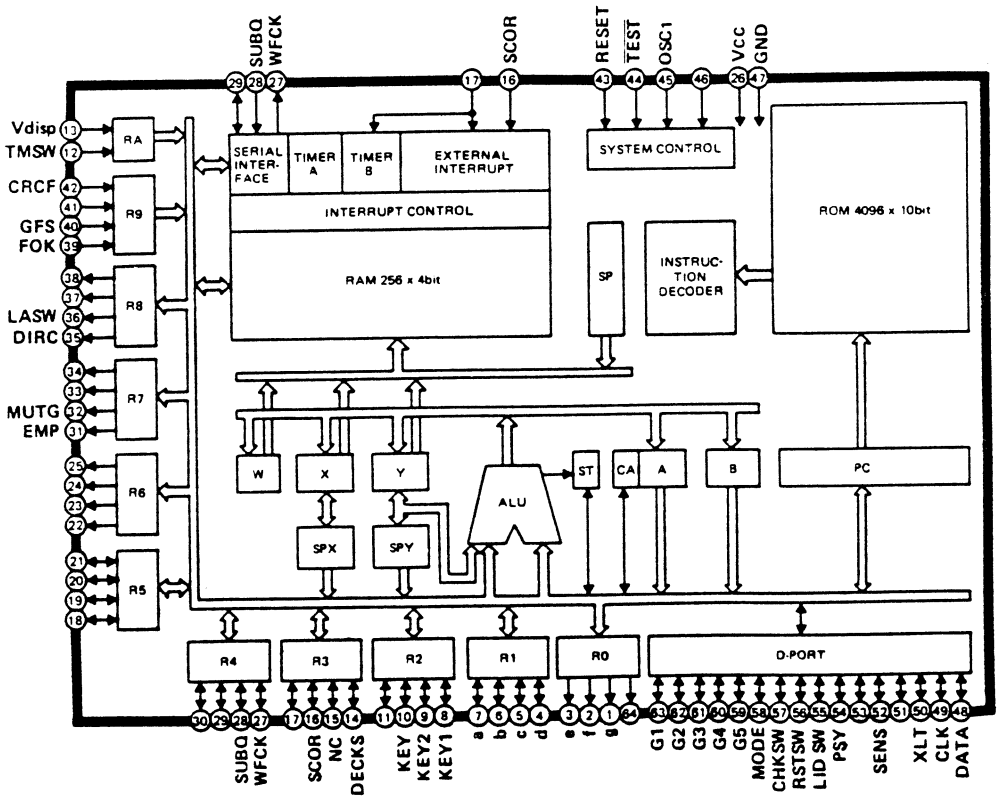
IC906 CX23035 (PX P.W.B.)
DIGITAL SIGNAL IC



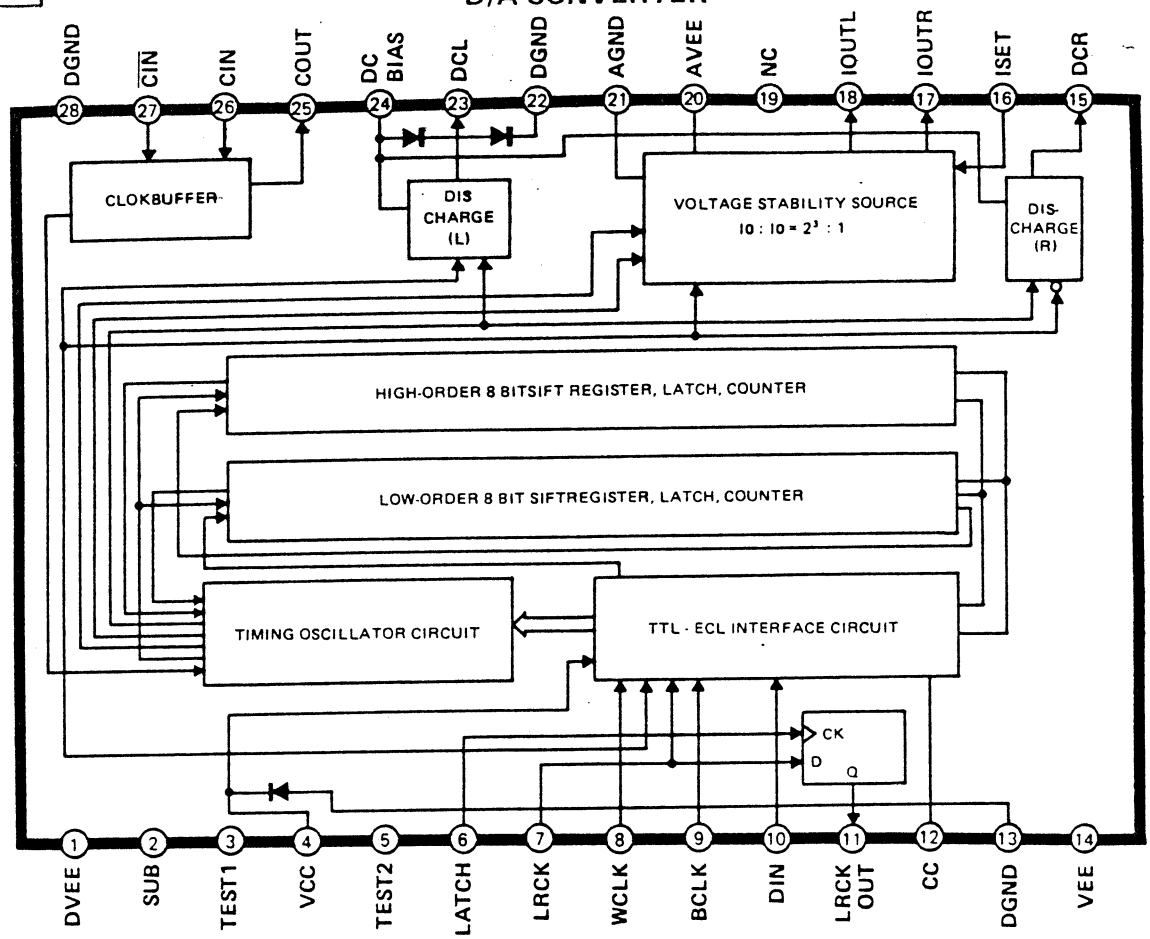
IC901 TM5050 (PX P.W.B.)
PRE-AMP MODULE



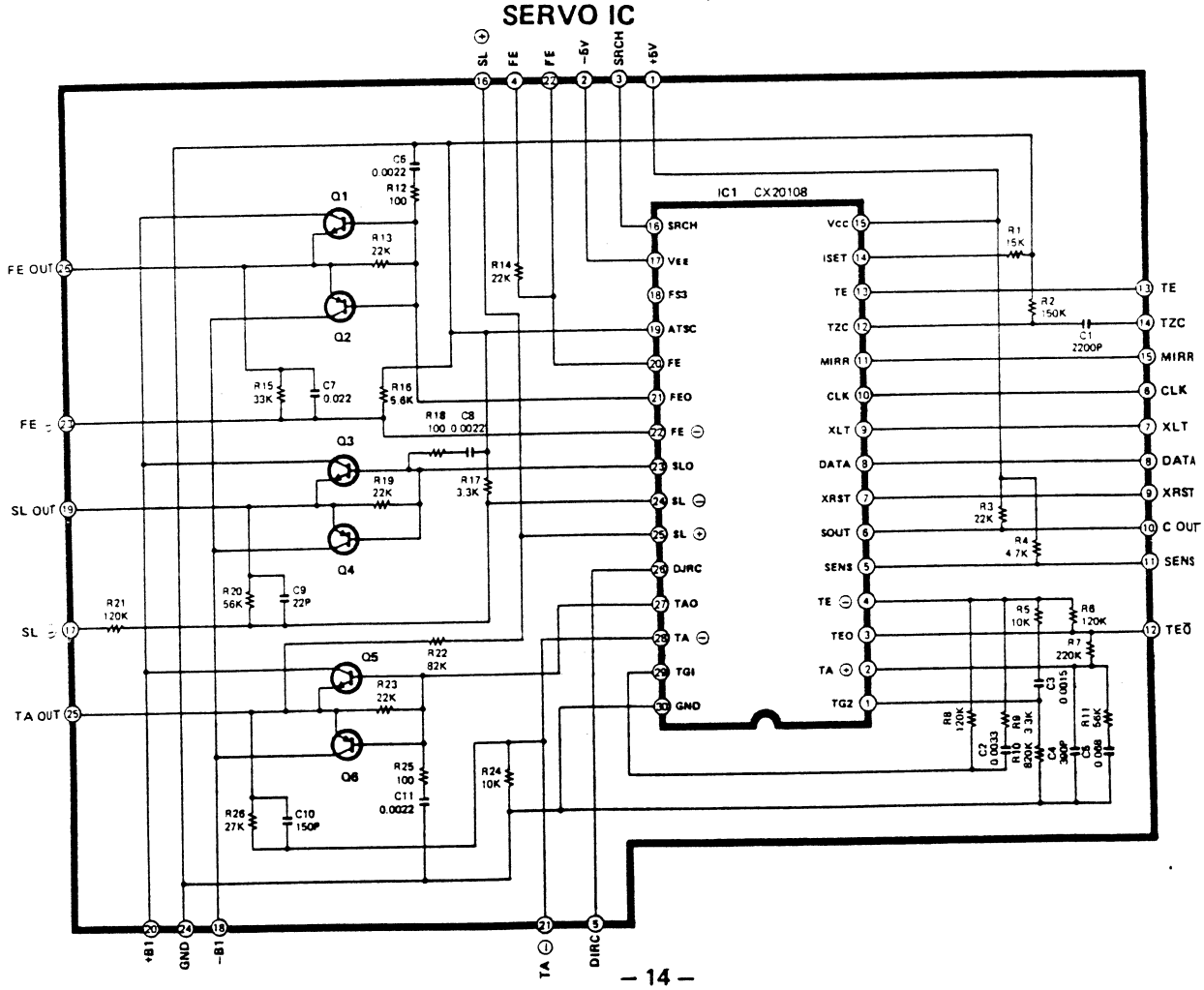
IC905 HD614042FD91 (PX P.W.B.)
MICROCOMPUTER



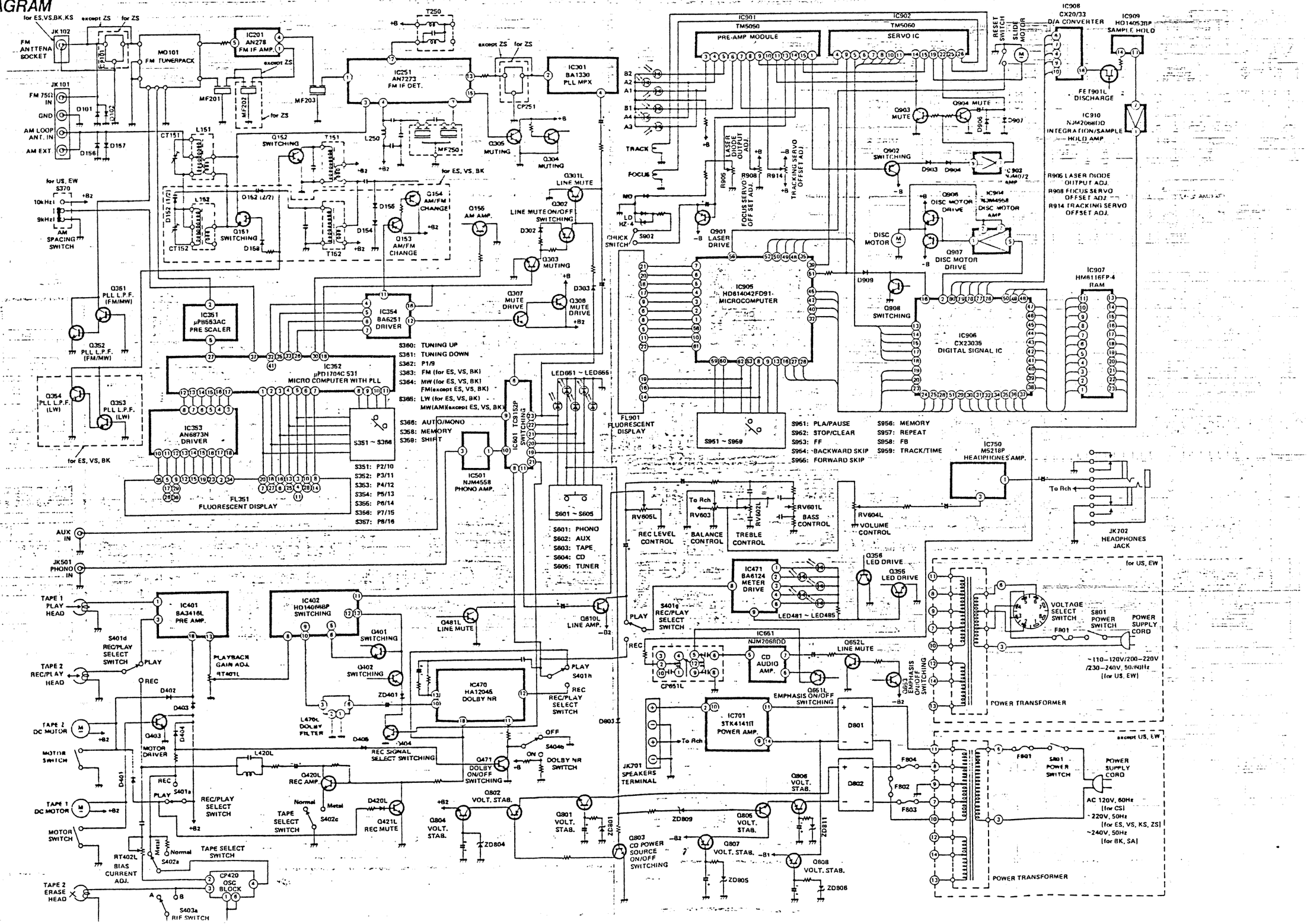
IC908 CX20133 (PX P.W.B.)
D/A CONVERTER



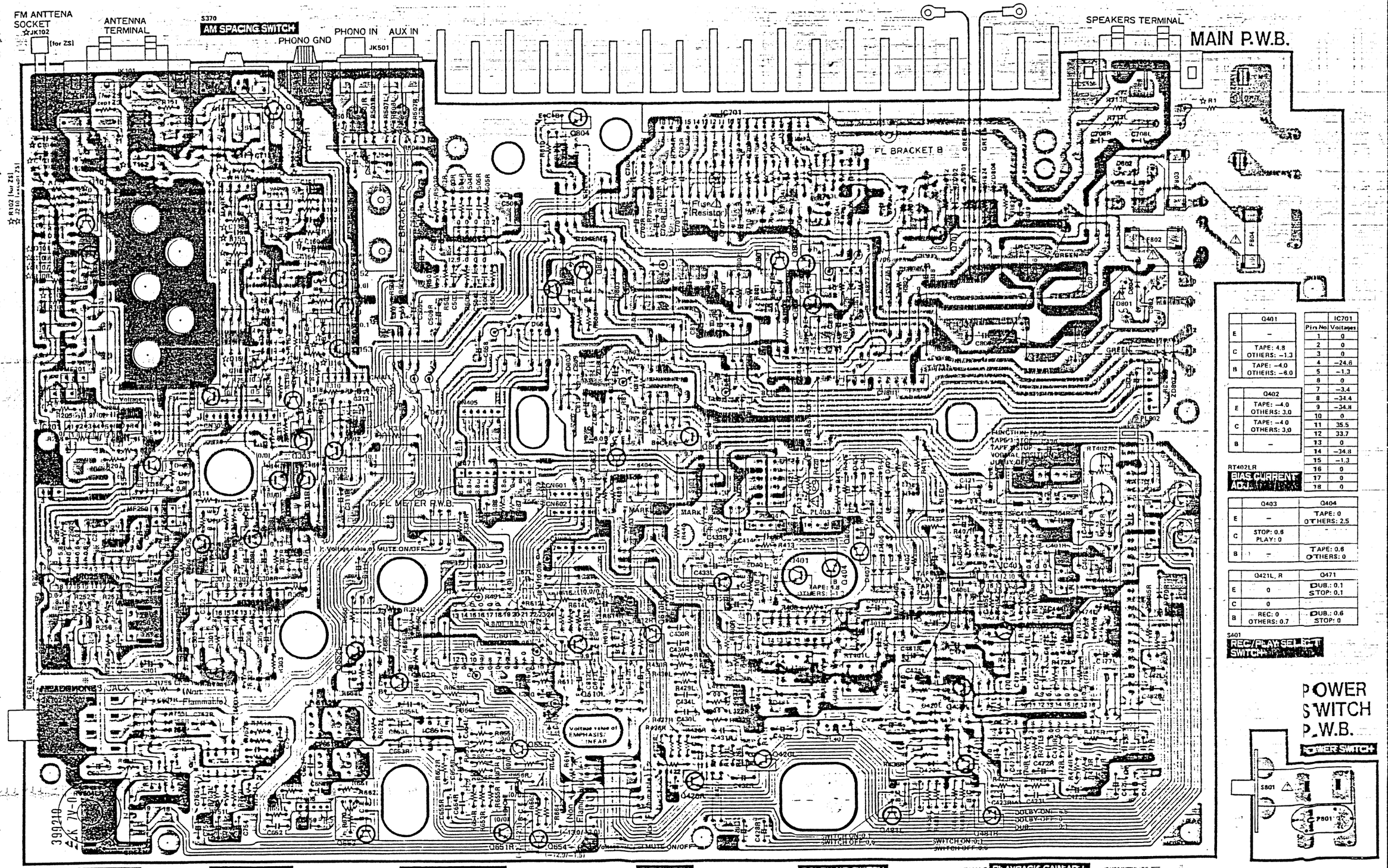
IC902 TM5060 (PX P.W.B.)
SERVO IC



BLOCK DIAGRAM



PRINTED WIRING BOARD [: Earth, :Others] ※ Axial lead cylindrical ceramic capacitor. The circuit symbol (☆) means difference for destination. (Refer to the table in page 21, 22)



	Q401
E	–
C	TAPE: 4.8 OTHERS: –1.3
B	TAPE: –4.0 OTHERS: –6.0

	Q402
E	TAPE: –4.0 OTHERS: 3.0
C	TAPE: –4.0 OTHERS: 3.0
B	–

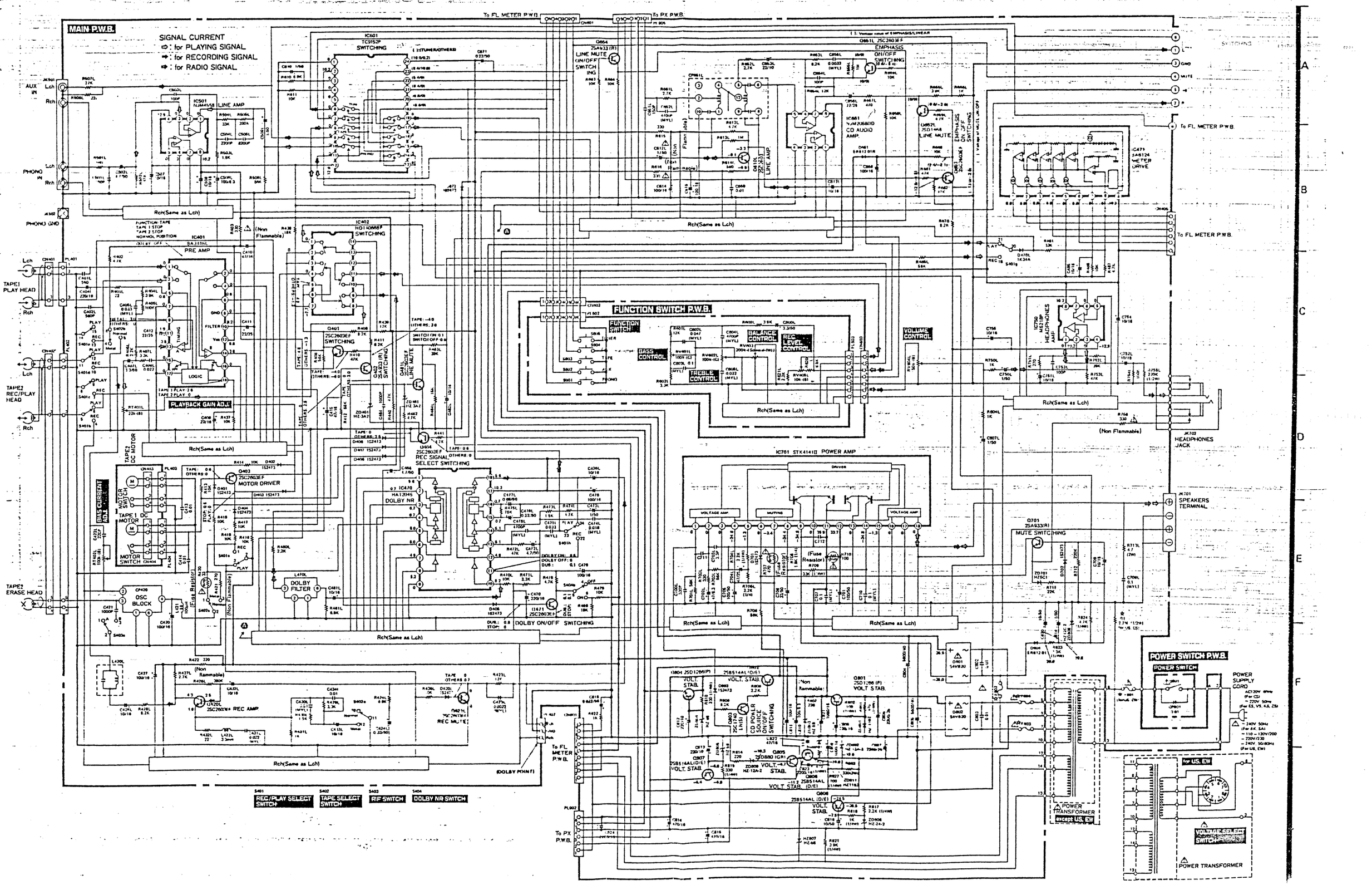
	Q403	Q404
E	–	TAPE: 0 OTHERS: 2.5
C	STOP: 0.8 PLAY: 0	–
B	–	TAPE: 0.6 OTHERS: 0

	Q421L, R	Q471
E	0	DUB.: 0.1 STOP: 0.1
C	0	–
B	REC: 0 OTHERS: 0.7	DUB.: 0.6 STOP: 0

Pin No	IC701 Voltages
1	0
2	0
3	0
4	–24.6
5	–1.3
6	0
7	–3.4
8	–34.4
9	–34.8
10	0
11	35.5
12	33.7
13	0
14	–34.8
15	–1.3
16	0
17	0
18	0

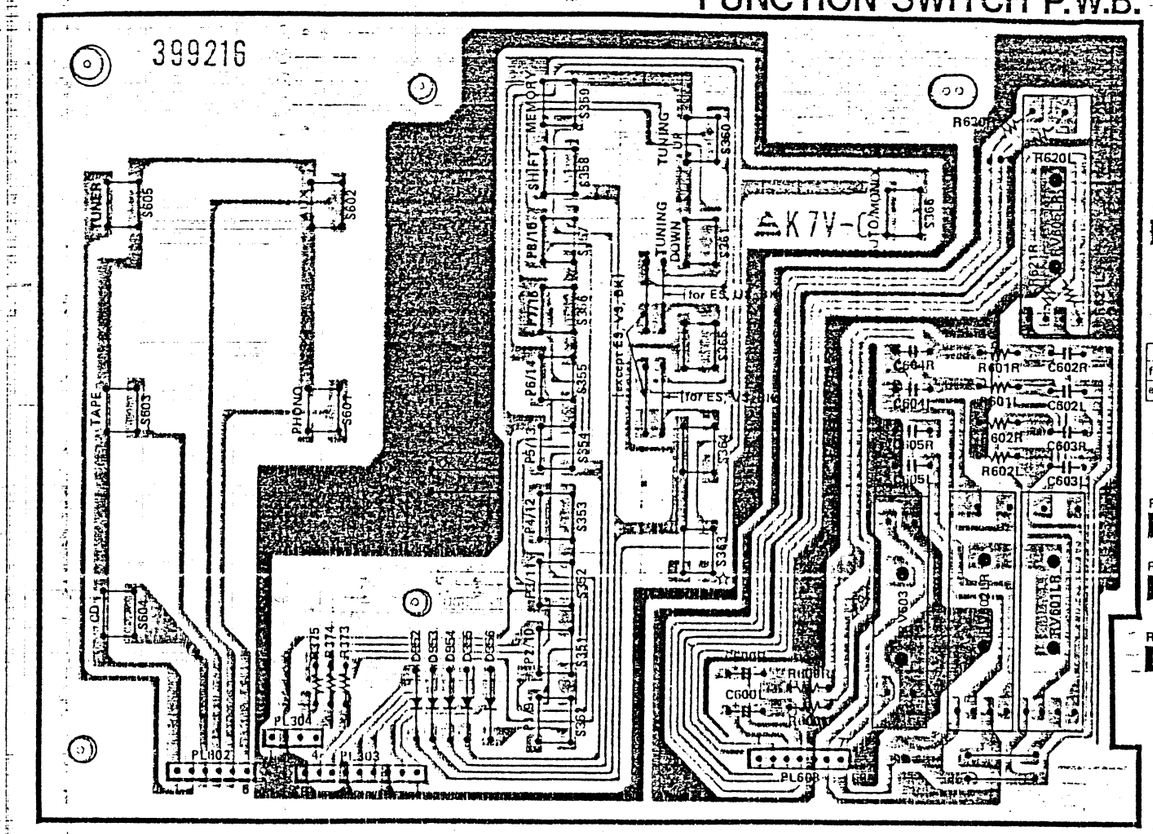
CIRCUIT DIAGRAM

[▬ :+B, ▬ :–B] ※ Axial lead cylindrical ceramic capacitor. The circuit symbol (☆) means difference for destination. (Refer to the table in page 29, 30)



PRINTED WIRING BOARD [: Earth, :Others] ※ Axial lead cylindrical ceramic capacitor. The circuit symbol (☆) means difference for destination. (Refer to the table in the drowing)

FUNCTION SWITCH P.W.B.

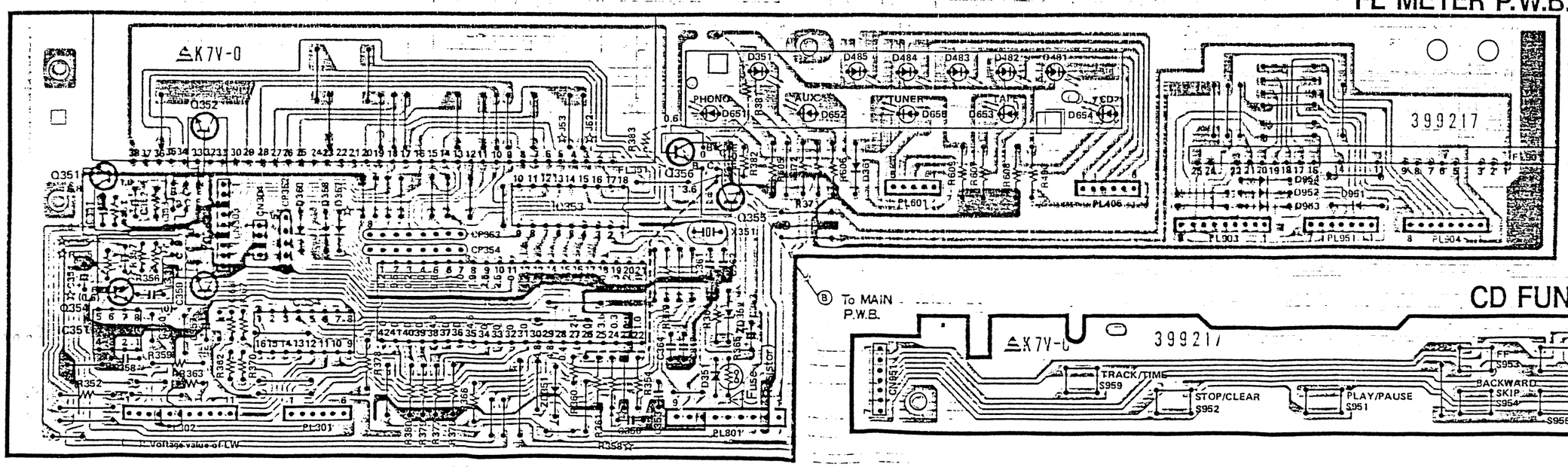


	S363	S364	S365
for ES, VS, BK	FM	MW	LW
except ES,VS,BK	–	FM	MW/AM

Pin No.	IC351	IC353	IC354
	Voltages		
1	4.9	4.2	9.5
2	4.2	4.6	0
3	0	4.2	0
4	0	4.2	0
5	5.6	4.2	4.6
6	0.5	4.2	0
7	0	4.2	0
8	8.0	4.2	0
9	–	−26.4	0
10	–	4.5	0
11	–	21.0	0
12	–	−21.1	0
13	–	−21.1	9.5
14	–	−21.1	0.7
15	–	−21.1	0.7
16	–	−21.1	0
17	–	−24.3	–
18	–	−24.3	–

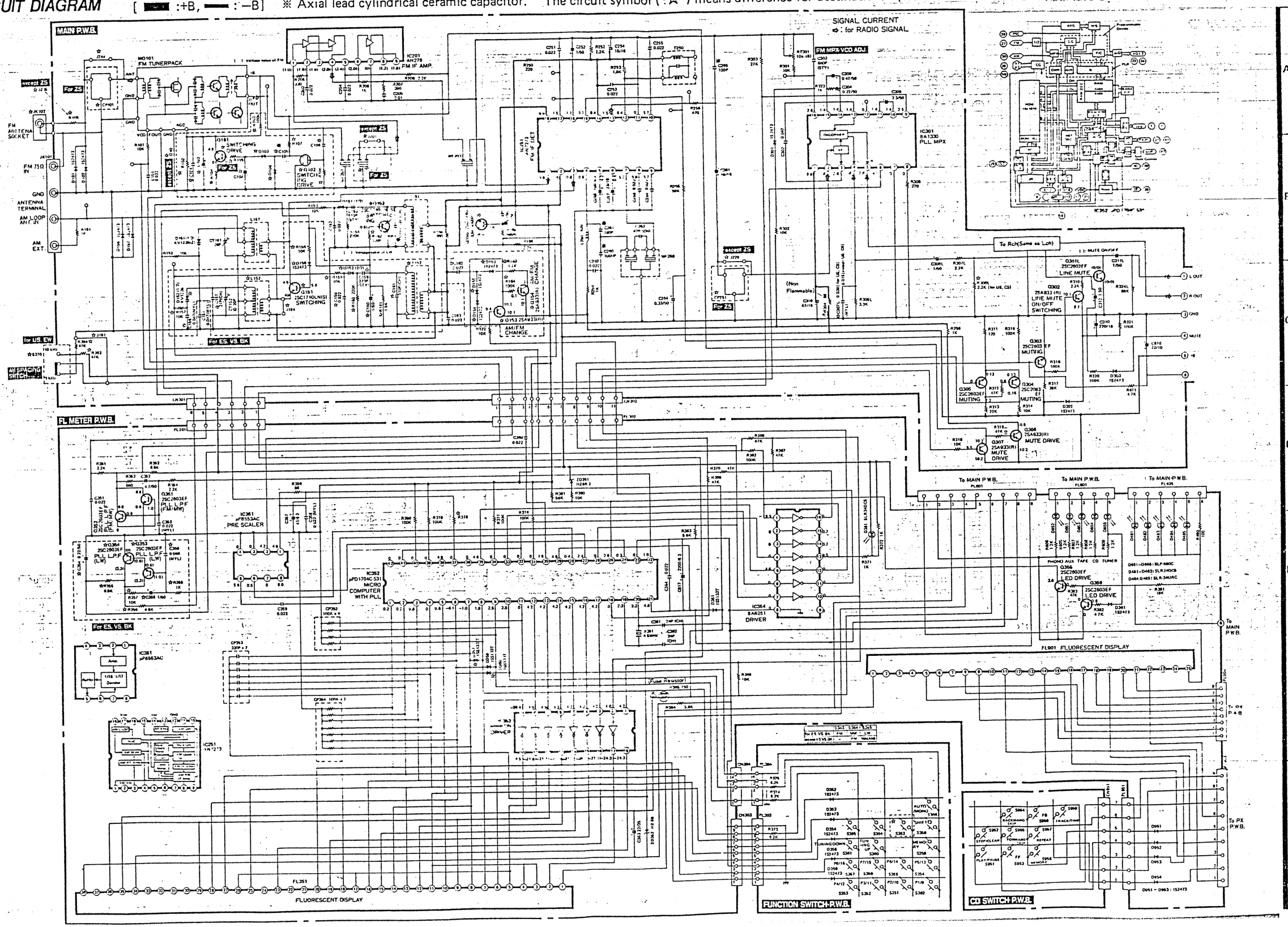
☆ No.	US	CS	EW	KS	SA	ES, VS, BK	ZS
C102 ~ C106	–	–	–	–	–	–	USE
C156 ~ C162	–	–	–	–	–	USE	–
C354 ~ C356	–	–	–	–	–	USE	–
R1	USE	USE	–	–	–	–	–
R102 ~ R108	–	–	–	–	–	–	USE
R157 ~ R164	–	–	–	–	–	USE	–
R308LR	USE	USE	–	–	–	–	–
R355 ~ R358	–	–	–	–	–	USE	–
R383, R384	USE	–	USE	–	–	–	–
Q101, Q102	–	–	–	–	–	–	USE
Q151, Q152	–	–	–	–	–	USE	–
Q153, Q154	USE	USE	USE	–	USE	USE	–
Q353, Q354	–	–	–	–	–	USE	–
D103, D104	–	–	–	–	–	–	USE
D152 ~ D156	–	–	–	–	–	USE	–
D158	–	–	–	–	–	USE	–
D357	–	–	–	USE	–	USE	USE
L152	–	–	–	–	–	USE	–
T152	–	–	–	–	–	USE	–
JK102	–	–	–	USE	–	USE	USE
MF202	–	–	–	–	–	–	USE
CT152	–	–	–	–	–	USE	–
CP101	–	–	–	–	–	–	USE
CP251	–	–	–	–	–	–	USE
FB01	USE	–	USE	–	–	–	–
S363	–	–	–	–	–	USE	–
S370	USE	–	USE	–	–	–	–
J 191	–	USE	–	USE	USE	USE	USE
J 229	USE	USE	USE	USE	USE	USE	–
J 244	USE	USE	USE	USE	USE	USE	–
J 240	USE	USE	USE	USE	USE	USE	–
J 235	USE	USE	USE	USE	USE	USE	–
J 52	–	–	–	–	–	USE	–
J 53	USE	USE	USE	USE	USE	–	USE

FL METER P.W.B.



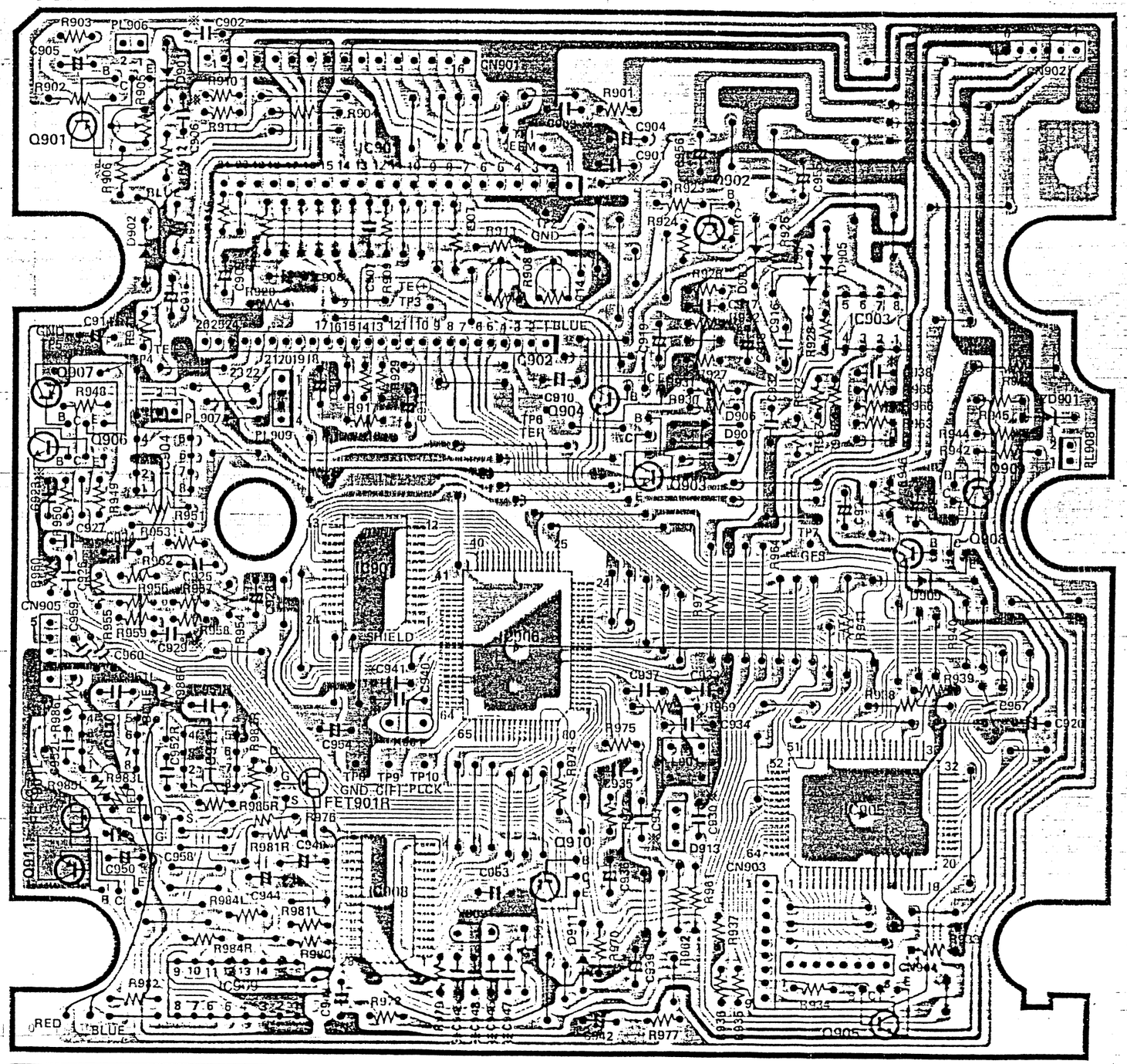
CIRCUIT DIAGRAM

[■■■ :+B, ——— :−B] ※ Axial lead cylindrical ceramic capacitor. The circuit symbol (☆) means difference for destination. (Refer to the table in page 29, 30)



PRINTED WIRING BOARD [: Earth, :Others] ※ Axial lead cylindrical ceramic capacitor.

PX P.W.B.



IC905

Pin No.	voltage	Pin No.	voltage	Pin No.	voltage	Pin No.	voltage
1	0.8	17		33		49	5.0
2	0.8	18		34		50	5.0
3	0.8	19		35	5.0	51	5.0
4	0.8	20		36	5.0	52	5.0
5	0.8	21		37		53	−10.0
6	0.8	22		38		54	
7	0.8	23		39	0	55	5.0
8	0	24		40	0	56	5.0
9	0	25		41		57	5.0
10	0	26	5.0	42	0	58	
11		27	0	43	0	59	0.5
12	0	28	0	44	5.0	60	0.5
13	0	29		45	2.5	61	0.5
14	0	30		46		62	
15	0	31	0	47	0	63	
16	0	32	5.0	48	5.0	64	

IC901

Pin No.	voltage	Pin No.	voltage
1	0	12	0
2	0	13	0
3	0	14	4.8
4	0	15	0
5	0	16	4.4
6	0	17	0
7	0	18	−5.0
8	0	19	−5.0
9	0	20	5.0
10	0	21	5.0
11	0		

IC906

Pin No.	voltage	Pin No.	voltage	Pin No.	voltage	Pin No.	voltage
1	0	21		41	2.5	61	
2	0	22		42	2.5	62	4.0
3	0	23	0	43	2.5	63	
4	0	24	0	44	2.5	64	
5	4.4	25	2.5	45	2.5	65	
6		26		46	2.5	66	
7	4.6	27		47	2.5	67	
8	2.5	28	0	48	2.5	68	
9	2.5	29	2.5	49	2.5	69	
10	0	30	2.5	50	2.5	70	2.2
11	2.5	31	2.5	51	2.5	71	
12	0	32	2.5	52	0	72	
13	5.0	33	5.0	53		73	5.0
14	5.0	34	2.5	54		74	
15	5.0	35	2.5	55		75	
16	5.0	36	2.5	56		76	2.5
17	5.0	37	2.5	57		77	2.5
18	5.0	38	2.5	58	0	78	0
19	5.0	39	2.5	59	0	79	2.5
20	0	40	2.5	60		80	2.5

IC902

Pin No.	voltage	Pin No.	voltage
1	5.0	14	0
2	−5.0	15	0
3	0	16	0
4	0	17	0
5	5.0	18	−10.0
6	5.0	19	0
7	5.0	20	10.0
8	5.0	21	0
9	5.0	22	0
10	5.0	23	0
11	5.0	24	0
12	0	25	0
13	0	26	0

IC907

Pin No.	voltage	Pin No.	voltage
1	2.5	13	2.5
2	2.5	14	2.5
3	2.5	15	2.5
4	2.5	16	2.5
5	2.5	17	2.5
6	2.5	18	2.5
7	2.5	19	2.5
8	2.5	20	2.5
9	2.5	21	2.5
10	2.5	22	2.5
11	2.5	23	2.5
12	0	24	5.0

IC908

Pin No.	voltage	Pin No.	voltage
1	−5.0	15	−3.4
2	−5.0	16	−3.5
3	0	17	0
4	5.0	18	0
5	−5.0	19	
6	2.5	20	−5.0
7	2.5	21	0
8	2.5	22	0
9	2.5	23	−3.3
10	0	24	1.4
11	3.0	25	−1.0
12	2.5	26	−1.3
13	0	27	−1.3
14	−5.0	28	0

Pin No.	IC903 voltage	IC904 voltage
1	0	0
2	2.6	0
3	2.6	0
4	−5.0	−10.0
5	0	0
6	0.7	0
7	−4.0	0
8	5.0	10.0

IC909

Pin No.	voltage	Pin No.	voltage
1	0	9	0.7
2	0	10	−4.4
3	0	11	0.7
4	0	12	0
5	0	13	0
6	−5.0	14	0
7	−5.0	15	0
8	−5.0	16	5.0

Pin No.	IC910 voltage	IC911 voltage
1	0	0
2	0	0
3	0	0
4	−5.0	−5.0
5	0	0
6	0	0
7	1.4	0
8	5.0	5.0

	Q901	Q902	Q903	Q904	Q906	Q907	Q908	Q909	Q910	Q911
E	0.5	0.6	0	0	0	0	0	0	4.6	−4.4
C	−10.0	−5.0	0	0	10.0	−10.0	5.0		4.6	−5.0
B	4.8	0			0	0	0	0.8	4.0	−5.0

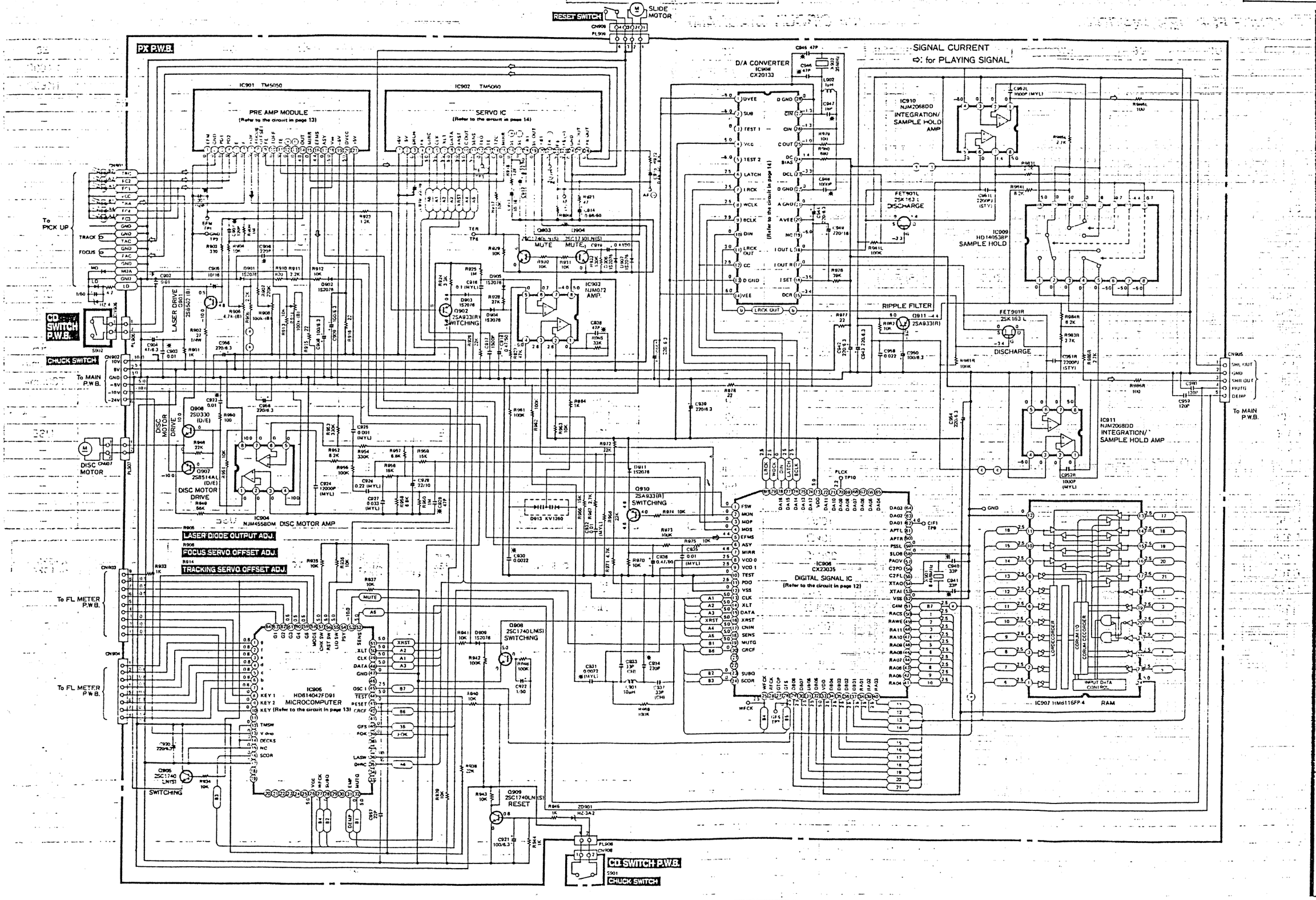
	FET901L	FET901R
S	0	0
D	1.4	0
G	−3.3	−3.4

R905 LASER DIODE OUTPUT ADJ.

R908 FOCUS SERVO OFFSET ADJ.

R914 TRACKING SERVO OFFSET ADJ.

CIRCUIT DIAGRAM [■ :+B, ■ : −B] ※ Axial lead cylindrical ceramic capacitor.



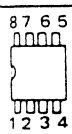
DIFFERENCE FOR DESTINATION

(for CIRCUIT DIAGRAM)

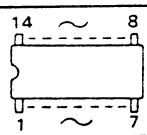
☆ No.	US	CS	EW	KS	SA	ES, VS, BK	ZS
C102	–	–	–	–	–	–	0.22μF/50V
C103	–	–	–	–	–	–	1μF/50V
C104	–	–	–	–	–	–	0.022μF
C105	–	–	–	–	–	–	39PF
C106	–	–	–	–	–	–	39PF
C156	–	–	–	–	–	0.047μF	–
C157	–	–	–	–	–	27PF	–
C158	–	–	–	–	–	0.022μF	–
C159	–	–	–	–	–	270PF	–
C160	–	–	–	–	–	1μF	–
C161	–	–	–	–	–	110PF	–
C162	–	–	–	–	–	0.022μF	–
C307LR	0.039μF	0.039μF	0.015μF	0.015μF	0.015μF	0.015μF	0.015μF
C308LR	1μF	1μF	–	–	–	–	–
C354	–	–	–	–	–	0.22μF/50V	–
C355	–	–	–	–	–	1μF/50V	–
C356	–	–	–	–	–	0.068μF	–
R1	2.7MΩ	2.7MΩ	–	–	–	–	–
R102	–	–	–	–	–	–	100kΩ
R103	–	–	–	–	–	–	100kΩ
R104	–	–	–	–	–	–	100kΩ
R105	–	–	–	–	–	–	10kΩ
R106	–	–	–	–	–	–	2.7kΩ
R107	–	–	–	–	–	–	100kΩ
R108	–	–	–	–	–	–	68Ω
R157	–	–	–	–	–	10kΩ	–
R158	–	–	–	–	–	10kΩ	–
R159	–	–	–	–	–	10kΩ	–
R160	–	–	–	–	–	220kΩ	–
R161	–	–	–	–	–	1.5kΩ	–
R162	–	–	–	–	–	100kΩ	–
R163	–	–	–	–	–	4.7kΩ	–
R164	–	–	–	–	–	100kΩ	–
R308LR	2.2kΩ	2.2kΩ	–	–	–	–	–
R355	–	–	–	–	–	6.8kΩ	–
R356	–	–	–	–	–	6.8kΩ	–
R357	–	–	–	–	–	10kΩ	–
R358	–	–	–	–	–	1kΩ	–
R378	47kΩ	100kΩ	47kΩ	100kΩ	100kΩ	100kΩ	100kΩ
R383	47kΩ	–	47kΩ	–	–	–	–
R384	47kΩ	–	47kΩ	–	–	–	–
Q101	–	–	–	–	–	–	2SC1740LN(S)
Q102	–	–	–	–	–	–	2SK104F
Q151	–	–	–	–	–	2SC1740LN(S)	–
Q152	–	–	–	–	–	2SC1740LN(S)	–
Q153	2SA933(R)	2SA933 (R)	2SA933 (R)	–	2SA933 (R)	2SA933(R)	–
Q154	2SA933 (R)	2SA933 (R)	2SA933 (R)	–	2SA933 (R)	2SA933(R)	–
Q353	–	–	–	–	–	2SC2603EF	–
Q354	–	–	–	–	–	2SC2603EF	–

☆ No.	US	CS	EW	KS	SA	ES, VS, BK	ZS
D103	–	–	–	–	–	–	1K60R
D104	–	–	–	–	–	–	1K60R
D152	–	–	–	–	–	KV1236	–
D153	–	–	–	–	–	1S2473	–
D154	–	–	–	–	–	1S2473	–
D155	–	–	–	–	–	1S2473	–
D158	–	–	–	–	–	1S2473	–
D357	–	–	–	1SS133T	–	1SS133T	1SS133T
L152	–	–	–	–	–	USE	–
T152	–	–	–	–	–	USE	–
JK102	–	–	–	USE	–	USE	USE
MF202	–	–	–	–	–	–	USE
CT152	–	–	–	–	–	USE	–
CP101	–	–	–	–	–	–	USE
CP251	–	–	–	–	–	–	USE
F801	USE	–	USE	–	–	–	–
F802	4A	4A	4A	T4A	T4A	T4A	T4A
F803	1A	1A	1A	T800mA	T800mA	for ES, VS T800mA for BK 800mA	T800mA
F804	1A	1A	1A	T800mA	T800mA	for ES, VS T800mA for BK 800mA	T800mA
S363	–	–	–	–	–	USE	–
S370	USE	–	USE	–	–	–	–
J191	–	USE	–	USE	USE	USE	USE
J201	USE	USE	USE	USE	USE	USE	–
J229	USE	USE	USE	USE	USE	USE	–
J244	USE	USE	USE	USE	USE	USE	–
J235	USE	USE	USE	USE	USE	USE	–
J240	USE	USE	USE	USE	USE	USE	–

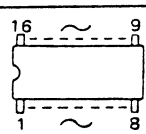
M5218P
NJM072
NJM2068DD
NJM4558D
μP8553AC



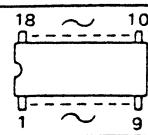
HD14066BP



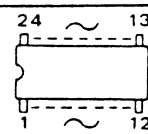
BA6251
BA1330
HD14053BP



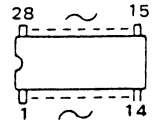
AN6873N
AN7273
HA12045



TC9152P



CX20133



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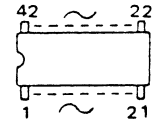
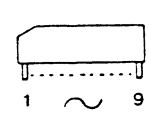
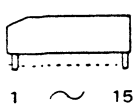


AN278
BA6124



STK4141II



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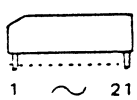

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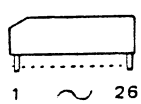
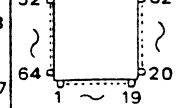
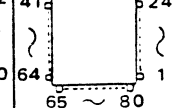


BA3416AL

HD61404FD91



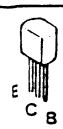
CX23035



2SA933(R)
2SA1468
2SC1740LN(S)

1K34A
1K60R
1S2076
1S2473
1SS133T
KV1260
HZ-3A2
HZ5C1
HZ-6B
HZ-7A1
HZ11B2
HZ-12A-2
HZ-12A-3
HZ-12C2
HZ-24-2

2SC2603EF



2SB514AL(D/E)
2SD330(D/E)
2SD880(GR)

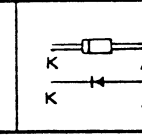
2SD1266(P)

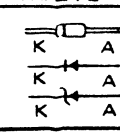
2SB562B

2SK104F

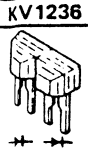
2SK163-L

ERB12-01

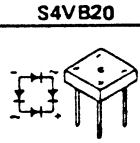




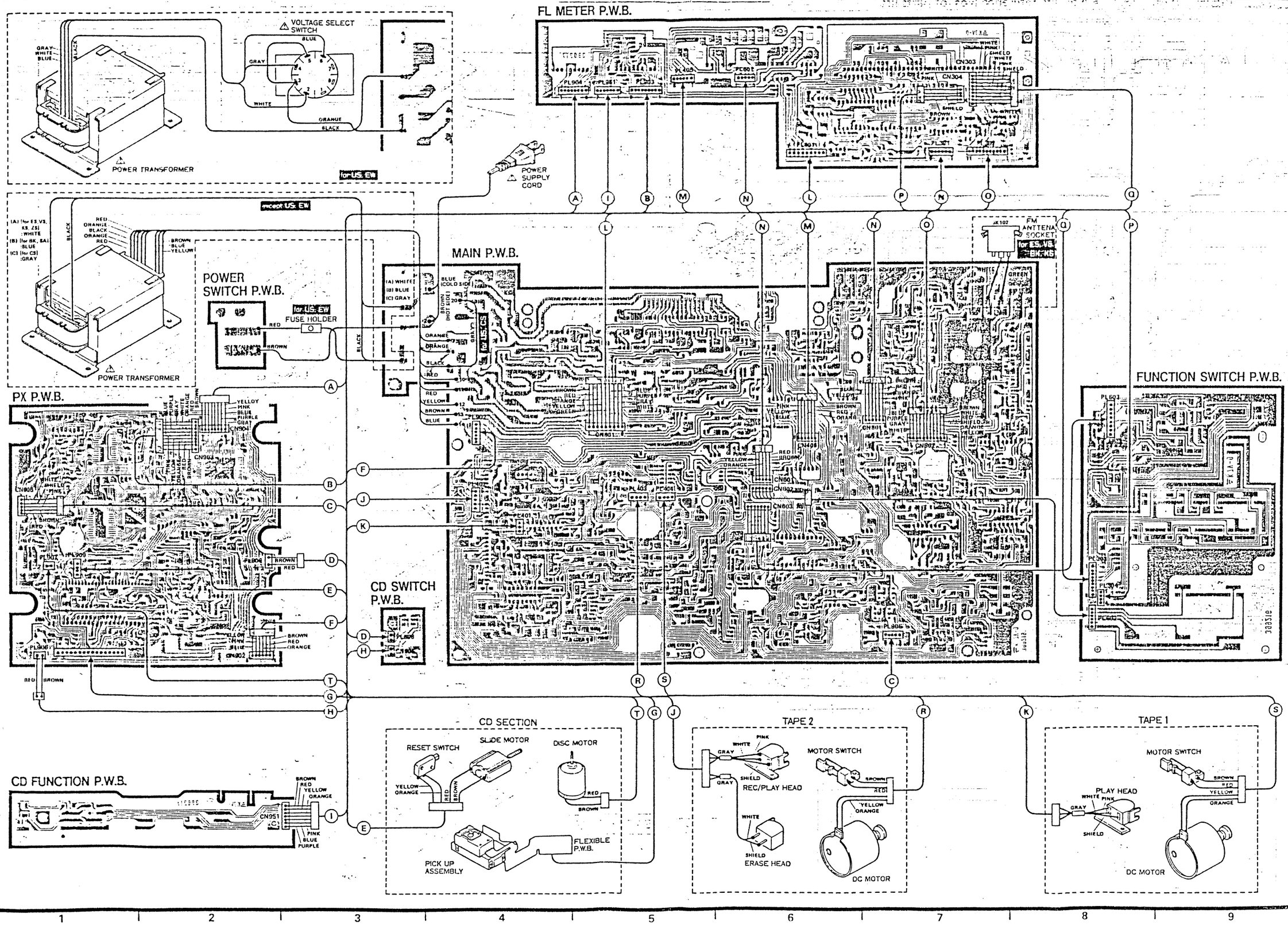
KV1236



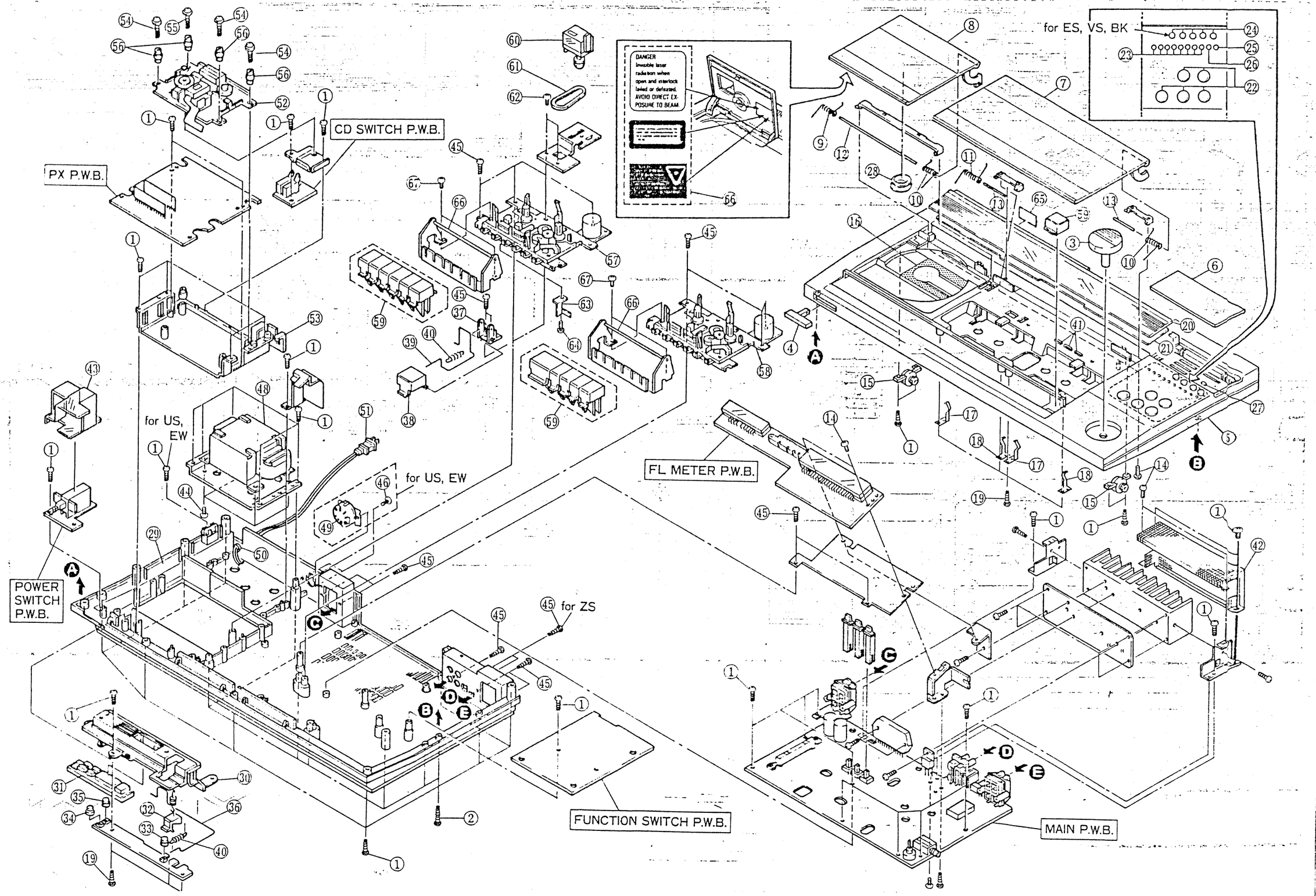
S4VB20



WIRING DIAGRAM

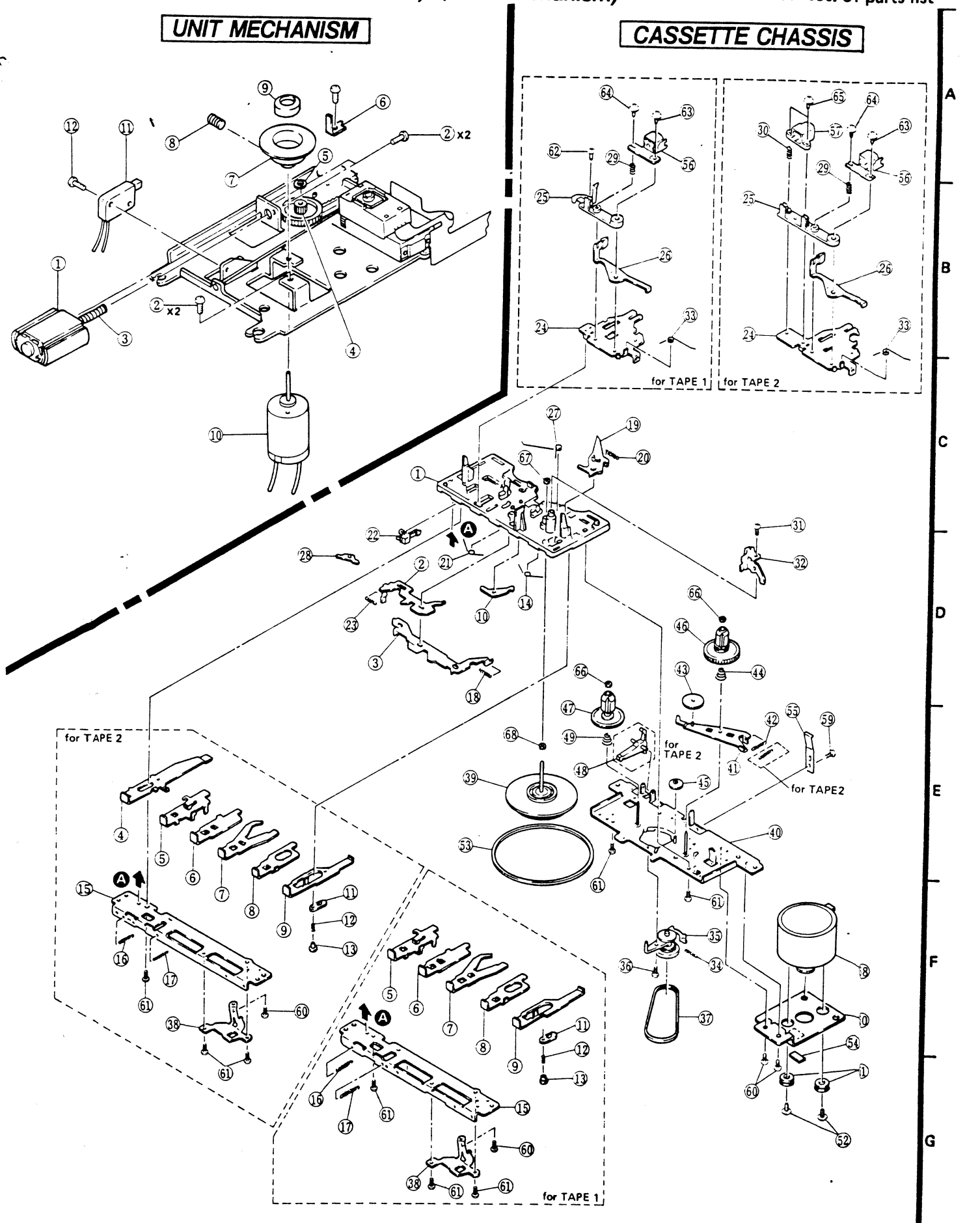


EXPLODED VIEW (Cabinet) • Nos. are reference Nos. of parts list



EXPLODED VIEW (Cassette Chassis) (Unit mechanism)

• Nos. are reference Nos. of parts list



REPLACEMENT PARTS LIST

P.W.B. Parts

CO: Composition
EL: Electrolytic
MF: Mylar film
MO: Metal oxide

CAPACITORS

SYMBOL NO.	PART NO.	DESCRIPTION	
C101	0244173	CD 0.022 μF +80% −20%	50V
C102	0252802	EL 0.22 μF ±20% (for ZS)	50V
C103	0252811	EL 1 μF ±20% (for ZS)	50V
C104	0244173	CD 0.022 μF +80% −20% (for ZS)	50V
C105	0230626	CC 39PF ±5% (for ZS)	50V
C106	0230626	CC 39PF ±5% (for ZS)	50V
C151	0275015	MF 0.047 μF ±10%	50V
C152	0244173	CD 0.022 μF +80% −20%	50V
C153	1279326	MF 510PF ±2%	100V
C154	1246442	CD 12PF ±5%	50V
C155	0230616	CC 15PF ±5%	50V
C156	0275015	MF 0.047 μF ±10% (for ES, VS, BK)	50V
C157	1246450	CD 27PF ±5% (for ES, VS, BK)	50V
C158	0244173	CD 0.022 μF +80% −20% (for ES, VS, BK)	50V
C159	0228321	ST 270PF ±5% (for ES, VS, BK)	50V
C160	0252811-	EL 1 μF ±20% (for ES, VS, BK)	50V
C161	1246465	CD 110PF ±5% (for ES, VS, BK)	50V
C162	0244173	CD 0.022 μF +80% −20% (for ES, VS, BK)	50V
C163	0244173	CD 0.022 μF +80% −20%	50V
C202	0244173	CD 0.022 μF +80% −20%	50V
C204	0244173	CD 0.022 μF +80% −20%	50V
C205	02441712	CD 0.01 μF +80% −20%	50V
C251	0244173	CD 0.022 μF +80% −20%	50V
C252	1252459	EL 1 μF ±20%	50V
C253	0244173	CD 0.022 μF +80% −20%	50V
C254	0252521	EL 10 μF ±20%	16V
C255	0244173	CD 0.022 μF +80% −20%	50V
C256	0252231	EL 100 μF ±20%	6.3V
C257	0252322	EL 22 μF ±20%	10V
C258	0244173	CD 0.022 μF +80% −20%	50V
C259	0244173	CD 0.022 μF +80% −20%	50V
C260	0240045	CC 1000PF ±10%	50V
C261	0240036	CC 180PF ±10%	50V
C262	0244173	CD 0.022 μF +80% −20%	50V
C263	1246456	CD 47PF ±5%	50V
C264	0252803	EL 0.33 μF ±20%	50V
C265	0240033	CC 100PF ±10%	50V
C301	0252521	EL 10 μF ±20%	16V
C302	1244185	CD 0.047 μF +80% −20%	50V
C303	0221525	ST 680PF ±5%	50V
C304	0252802	EL 0.22 μF ±20%	50V
C305	02528132	EL 3.3 μF ±20%	50V
C306	0252525	EL 47 μF ±20%	16V
C307LR	0275034	MF 0.039 μF ±10% (for US, CS)	50V
C307LR	02750122	MF 0.015 μF ±10% (except US, CS)	50V
C308L	1252459	EL 1 μF ±20%	50V
C308R	0252811	EL 1 μF ±20%	50V
C309	0252805	EL 0.47 μF ±20%	50V
C310	1252427	EL 220 μF ±20%	16V
C311LR	0252459	EL 1 μF ±20%	50V
C312	0252811	EL 1 μF ±20%	50V
C351	1244173	CD 0.022 μF +80% −20%	50V
C352	1252271	EL 4.7 μF ±20%	50V
C353	1275013	MF 0.022 μF ±10%	50V
C354	1252269	EL 0.22 μF ±20% (for ES, VS, BK)	50V
C355	1252252	EL 1 μF ±20% (for ES, VS, BK)	50V
C356	1275016	MF 0.068 μF ±10% (for ES, VS, BK)	50V
C357	1252253	EL 47 μF ±20%	6.3V
C358	1275013	MF 0.022 μF ±10%	50V
C359	1244173	CD 0.022 μF +80% −20%	50V
C360	1244173	CD 0.022 μF +80% −20%	50V
C361	1246449	CD 24PF ±5%	50V
C362	1246449	CD 24PF ±5%	50V
C363	1252722	EL 22 μF +80% −20%	35V
C364	1244173	CD 0.022 μF +80% −20%	50V
C401LR	02097242	CD 560PF ±10%	50V
C402LR	02097242	CD 560PF ±10%	50V
C404LR	1252427	EL 220 μF ±20%	16V
C405LR	02750142	MF 0.033 μF ±10%	50V
C406LR	0244173	CD 0.022 μF +80% −20%	50V
C407LR	0252461	EL 3.3 μF ±20%	50V
C408	0252423	EL 22 μF ±20%	16V
C410	1252255	EL 47 μF ±20%	16V
C411	1252272	EL 22 μF ±20%	25V
C412	1252272	EL 22 μF ±20%	25V
C413	02441712	CD 0.01 μF +80% −20%	50V
C414	0240061	CD 0.01 μF ±30%	16V
C415	1252255	EL 47 μF ±20%	16V
C420	0252531	EL 100 μF ±20%	16V
C421	0209731	CD 1000PF ±10%	50V
C422LR	02086922	CD 220PF ±5%	50V
C423LR	02740132	MF 0.0022 μF ±10%	50V
C424LR	1252803	EL 0.33 μF ±20%	50V
C426LR	1252251	EL 10 μF ±20%	16V
C427	1252265	EL 100 μF ±20%	16V
C428LR	1252251	EL 10 μF ±20%	16V
C430LR	02750112	MF 0.01F ±10%	50V
C431LR	02750132	MF 0.022 μF ±10%	50V
C432LR	1252251	EL 10 μF ±20%	16V
C433LR	1252251	EL 10 μF ±20%	16V
C434LR	02750112	MF 0.01 μF ±10%	50V
C470	0252427	EL 220 μF ±20%	16V
C471LR	02750142	MF 0.033 μF ±10%	50V
C472LR	0252815	EL 4.7 μF ±20%	50V
C473LR	1252252	EL 1 μF ±20%	50V
C474LR	1275232	MF 0.018 μF ±5%	50V
C475LR	0252802	EL 0.22 μF ±20%	50V
C476	1252265	EL 100 μF ±20%	16V
C477L	02528072	EL 0.68 μF ±20%	50V
C477R	1252458	EL 0.68 μF ±20%	50V
C478LR	1274215	MF 4700PF ±5%	50V
C479	1252265	EL 100 μF ±20%	16V
C481LR	1252251	EL 10 μF ±20%	16V
C482LR	1252251	EL 10 μF ±20%	16V
C484	0209161	CD 1000PF +80% −20%	50V
C485	1252251	EL 10 μF ±20%	16V
C486	0252462	EL 4.7 μF ±20%	50V
C501LR	1248688	CD 150PF ±5%	50V
C502L	0252462	EL 4.7 μF ±20%	50V
C502R	1252462	EL 4.7 μF ±20%	50V
C503LR	1248684	CD 100PF ±5%	50V
C504LR	0240053	CC 2200PF ±20%	16V
C505LR	0240060	CC 8200PF ±30%	16V
C506LR	02522312	EL 100 μF ±20%	6.3V
C507	0252521	EL 10 μF ±20%	16V
C508	0252521	EL 10 μF ±20%	16V
C509LR	0252811	EL 1 μF ±20%	50V
C600LR	12528132	EL 3.3 μF ±20%	50V
C602LR	1275015	MF 0.047 μF ±10%	50V
C603LR	02760112	MF 0.1 μF ±10%	50V
C604LR	1274015	MF 4700PF ±10%	50V
C605LR	1275013	MF 0.022 μF ±10%	50V
C607LR	0252459	EL 1 μF ±20%	50V
C610	1252252	EL 1 μF ±20%	50V
C612LR	0252811	EL 1 μF ±20%	50V
C613LR	1252251	EL 10 μF ±20%	16V
C614	1252265	EL 100 μF ±20%	16V
C615	1252265	EL 100 μF ±20%	16V
C651LR	0240035	CC 150PF ±10%	50V
C652LR	0274015	MF 4700PF ±10%	50V
C653LR	0252322	EL 22 μF ±20%	10V
C654LR	0240033	CC 100PF ±10%	50V
C655LR	02740142	MF 0.0033 μF ±10%	50V
C656LR	1252272	EL 22 μF ±20%	25V
C658	0252426	EL 100 μF ±20%	16V
C659	0240061	CC 0.01 μF ±30%	16V
C670	0252411	EL 22 μF ±20%	10V
C671	0252455	EL 0.22 μF ±20%	50V
C700LR	0240039	CC 330PF ±10%	50V
C701	0252467	EL 100 μF ±20%	50V
C702L	0252225	EL 47 μF ±20%	6.3V
C702R	1252401	EL 47 μF ±20%	6.3V
C703LR	0230606	CC 3.3PF ±10%	50V
C704LR	02526252	EL 47 μF ±20%	25V
C705	1252467	EL 100 μF ±20%	50V
C706	1252465	EL 33 μF ±20%	50V
C707	02760112	MF 0.1 μF ±10%	50V
C708LR	02760112	MF 0.1 μF ±10%	50V
C709	0252521	EL 10 μF ±20%	16V
C710	02760112	MF 0.1 μF ±10%	50V
C750LR	0252811	EL 1 μF ±20%	50V
C751L	1252422	EL 10 μF ±20%	16V
C751R	0252521	EL 10 μF ±20%	16V
C752LR	0252521	EL 10 μF ±20%	16V
C753LR	1248684	CD 100PF ±5%	50V
C754	0252521	EL 10 μF ±20%	16V
C755	1252422	EL 10 μF ±20%	16V
C802	0245408	CD 0.01 μF ±20%	500V
C803	0245408	CD 0.01 μF ±20%	500V
C804	0259933	EL 5600 μF ±20%	40V
C805	0259933	EL 5600 μF ±20%	40V
C806	0259840	EL 2200 μF ±20%	25V
C807	0259840	EL 2200 μF ±20%	25V
C808	0252427	EL 220 μF ±20%	16V
C809	0252541	EL 1000 μF ±20%	16V
C810	0252402	EL 100 μF ±20%	6.3V
C811	1252426	EL 100 μF ±20%	16V

SYNBOL NO.	PART NO.	DESCRIPTION			
C812	0252415	EL	220 μF	±20%	10V
C813	0252415	EL	220 μF	±20%	10V
C814	1252429	EL	470 μF	±20%	16V
C815	1252429	EL	470 μF	±20%	16V
C816	02528212	EL	10 μF	±20%	50V
C817	0252407	EL	2200 μF	±20%	6.3V
C818	0259891	Super capacitor 0.022 μF			
C819	0252811	EL	1 μF	±20%	50V
C820	0252821	EL	10 μF	±20%	50V
C821	1252430	EL	1000 μF	±20%	16V
C822	0252525	EL	47 μF	±20%	16V
C823	0252542	EL	2200 μF	±20%	16V
C824	0252542	EL	2200 μF	±20%	16V
C901	0240035	CC	150PF	±10%	50V
C902	0240061	CC	0.01 μF	±30%	16V
C903	0240061	CC	0.01 μF	±30%	16V
C904	0252225	EL	47 μF	±20%	6.3V
C905	1252521	EL	10 μF	±20%	16V
C906	0240037	CC	220PF	±10%	50V
C907	0240034	CC	120PF	±10%	50V
C908	0252402	EL	100 μF	±20%	6.3V
C909	0252402	EL	100 μF	±20%	6.3V
C910	02525222	EL	22 μF	±20%	16V
C911	0252521	EL	10 μF	±20%	16V
C912	0252802	EL	0.22 μF	±20%	50V
C914	02528072	EL	0.68 μF	±20%	50V
C915	02528072	EL	0.68 μF	±20%	50V
C916	02760112	MF	0.1 μF	±10%	50V
C917	0240051	CC	1500PF	±20%	16V
C918	0252805	EL	0.47 μF	±20%	50V
C919	0252805	EL	0.47 μF	±20%	50V
C920	0252403	EL	220 μF	±20%	6.3V
C921	0252402	EL	100 μF	±20%	6.3V
C922	0252811	EL	1 μF	±20%	50V
C923	0240061	CC	0.01 μF	±30%	16V
C924	0275031	MF	12000PF	±10%	50V
C925	1275011	MF	0.001 μF	±10%	50V
C926	1276013	MF	0.22 μF	±10%	50V
C927	1275014	MF	0.033 μF	±10%	50V
C928	0252322	EL	22 μF	±20%	10V
C929	0230628	CC	47PF	±5%	50V
C930	0274013	CC	0.0022 μF	±10%	50V
C931	0274013	CC	0.0022 μF	±10%	50V
C932	02750112	MF	0.01 μF	±10%	50V
C933	1246452	CD	33PF	±5%	50V
C934	0240037	CC	220PF	±10%	50V
C935	02750112	MF	0.01 μF	±10%	50V
C936	0252805	EL	0.47 μF	±20%	50V
C937	1246452	CD	33PF	±5%	50V
C938	0230628	CC	47PF	±5%	50V
C939	1252403	EL	220 μF	±20%	6.3V
C940	0230624	CC	33PF	±5%	50V
C941	0230624	CC	33PF	±5%	50V
C942	1252403	EL	220 μF	±20%	6.3V
C943	0252403	EL	220 μF	±20%	6.3V
C944	0252403	EL	220 μF	±20%	6.3V
C945	0230628	CC	47PF	±5%	50V
C946	0230628	CC	47PF	±5%	50V
C947	0230618	CC	18PF	±5%	50V
C948	0240045	CC	1000PF	±10%	50V
C949	1252427	EL	220 μF	±20%	16V

SYNBOL NO.	PART NO.	DESCRIPTION			
C950	1252402	EL	100 μF	±20%	6.3V
C951LR	0228343	ST	2200PF	±5%	50V
C952L	02740112	MF	1000PF	±10%	50V
C952R	1274011	MF	1000PF	±10%	50V
C953	0252403	EL	220 μF	±20%	6.3V
C954	1252403	EL	220 μF	±20%	6.3V
C955	0252403	EL	220 μF	±20%	6.3V
C956	0252403	EL	220 μF	±20%	6.3V
C957	02486682	CD	22PF	±5%	50V
C958	0244173	CD	0.022 μF	+80 −20%	50V
C959	02486862	CD	120PF	±5%	50V
C960	02486862	CD	120PF	±5%	50V

RESISTORS

R1	0139005	CO	2.7MΩ	±10%	RC1/2GF
		(for US, CS)			
R101	0113639	CF	10kΩ	±5%	1/6P
R102	0113663	CF	100kΩ	±5%	1/6P
		(for ZS)			
R103	0113663	CF	100kΩ	±5%	1/6P
		(for ZS)			
R104	0113591	CF	100Ω	±5%	1/6P
		(for ZS)			
R105	0113639	CF	10kΩ	±5%	1/6P
		(for ZS)			
R106	0113625	CF	2.7kΩ	±5%	1/6P
		(for ZS)			
R107	0113663	CF	100kΩ	±5%	1/6P
		(for ZS)			
R108	0113587	CF	68Ω	±5%	1/6P
		(for ZS)			
R151	0113615	CF	1kΩ	±5%	1/6P
R152	0113639	CF	10kΩ	±5%	1/6P
R153	0113639	CF	10kΩ	±5%	1/6P
R154	0113671	CF	220kΩ	±5%	1/6P
R155	0113611	CF	680Ω	±5%	1/6P
R157	0113639	CF	10kΩ	±5%	1/6P
		(for ES, VS, BK)			
R158	0113639	CF	10kΩ	±5%	1/6P
		(for ES, VS, BK)			
R159	0113639	CF	10kΩ	±5%	1/6P
		(for ES, VS, BK)			
R160	0113671	CF	220kΩ	±5%	1/6P
		(for ES, VS, BK)			
R161	0113619	CF	1.5kΩ	±5%	1/6P
		(for ES, VS, BK)			
R162	0113663	CF	100kΩ	±5%	1/6P
		(for ES, VS, KS)			
R163	0113631	CF	4.7kΩ	±5%	1/6P
		(for ES, VS, KS)			
R164	0113663	CF	100kΩ	±5%	1/6P
		(for ES, VS, KS)			
R165	0113683	CF	680kΩ	±5%	1/6P
R166	0113623	CF	2.2kΩ	±5%	1/6P
R205	0113603	CF	330Ω	±5%	1/6P
R206	0113615	CF	1kΩ	±5%	1/6P
R207	0113605	CF	390Ω	±5%	1/6P
R208	0113623	CF	2.2kΩ	±5%	1/6P
R250	0113291	CF	220Ω	±5%	1/2P
R252	0113623	CF	2.2kΩ	±5%	1/6P
R253	0113621	CF	1.8kΩ	±5%	1/6P
R254	0113615	CF	1kΩ	±5%	1/6P

SYNBOL NO.	PART NO.	DESCRIPTION			
R255	0113639	CF	10kΩ	±5%	1/6P
R256	0113607	CF	470Ω	±5%	1/6P
R258	0113615	CF	1kΩ	±5%	1/6P
R301	0113639	CF	10kΩ	±5%	1/6P
R302	0113639	CF	10kΩ	±5%	1/6P
R303	0113649	CF	27kΩ	±5%	1/6P
⚠R304	1123619	NF	68Ω	±5%	1/4P
R305LR	0113627	CF	3.3kΩ	±5%	1/6P
R306	0113601	CF	270Ω	±5%	1/6P
R307LR	0113623	CF	2.2kΩ	±5%	1/6P
R308LR	0113623	CF	2.2kΩ	±5%	1/6P
		(for US, CS)			
R310	0113623	CF	2.2kΩ	±5%	1/6P
R311	0113593	CF	120Ω	±5%	1/6P
R312	0113655	CF	47kΩ	±5%	1/6P
R313	0113647	CF	22kΩ	±5%	1/6P
R314	0113639	CF	10kΩ	±5%	1/6P
R315	0113663	CF	100kΩ	±5%	1/6P
R316	0113663	CF	100kΩ	±5%	1/6P
R317	0113653	CF	39kΩ	±5%	1/6P
R318	0113639	CF	10kΩ	±5%	1/6P
R319	0113655	CF	47kΩ	±5%	1/6P
R320	0113663	CF	100kΩ	±5%	1/6P
R321	0113663	CF	100kΩ	±5%	1/6P
R322	0113639	CF	10kΩ	±5%	1/6P
R323	0113615	CF	1kΩ	±5%	1/6P
R324LR	0113659	CF	68kΩ	±5%	1/6P
R351	0113623	CF	2.2kΩ	±5%	1/6P
R352	0113635	CF	6.8kΩ	±5%	1/6P
R353	0113611	CF	680Ω	±5%	1/6P
R354	0113623	CF	2.2kΩ	±5%	1/6P
R355	0113635	CF	6.8kΩ	±5%	1/6P
		(for ES, VS, BK)			
R356	0113635	CF	6.8kΩ	±5%	1/6P
		(for ES, VS, BK)			
R357	0113639	CF	10kΩ	±5%	1/6P
		(for ES, VS, BK)			
R358	0113615	CF	1kΩ	±5%	1/6P
		(for ES, VS, BK)			
R359	0113587	CF	68Ω	±5%	1/6P
R360	0113639	CF	10kΩ	±5%	1/6P
R361	0113657	CF	56kΩ	±5%	1/6P
R362	0113663	CF	100kΩ	±5%	1/6P
R363	0113633	CF	5.6kΩ	±5%	1/6P
R364	0113633	CF	5.6kΩ	±5%	1/6P
⚠R365	0110623	FR	150Ω	±5%	RN1/4B
R366	0113639	CF	10kΩ	±5%	1/6P
R367	0113655	CF	47kΩ	±5%	1/6P
R368	0113655	CF	47kΩ	±5%	1/6P
R369	0113655	CF	47kΩ	±5%	1/6P
R370	0113655	CF	47kΩ	±5%	1/6P
R371	0113615	CF	1kΩ	±5%	1/6P
R372	0113615	CF	1kΩ	±5%	1/6P
R373	0113637	CF	8.2kΩ	±5%	1/6P
R374	0113637	CF	8.2kΩ	±5%	1/6P
R375	0113637	CF	8.2kΩ	±5%	1/6P
R376	0113663	CF	100kΩ	±5%	1/6P
R377	0113663	CF	100kΩ	±5%	1/6P
R378	0113655	CF	47kΩ	±5%	1/6P
		(for US, EW)			
R378	0113663	CF	100kΩ	±5%	1/6P
		(except US, EW)			

SYNBOL NO.	PART NO.	DESCRIPTION		
R379	0113663	CF 100kΩ	±5%	1/6P
R380	0113663	CF 100kΩ	±5%	1/6P
R381	0113645	CF 18kΩ	±5%	1/6P
R382	0113631	CF 4.7kΩ	±5%	1/6P
R383	0113655	CF 47kΩ (for US, EW)	±5%	1/6P
R384	0113655	CF 47kΩ (for US, EW)	±5%	1/6P
R401LR	0113575	CF 22Ω	±5%	1/6P
R402	0113631	CF 4.7kΩ	±5%	1/6P
R403	1123627	CF 330Ω	±5%	1/4P
R404LR	0113629	CF 3.9kΩ	±5%	1/6P
R405LR	0113663	CF 100kΩ	±5%	1/6P
R406LR	0113623	CF 2.2kΩ	±5%	1/6P
R407LR	0113627	CF 3.3kΩ	±5%	1/6P
R408	0113657	CF 56kΩ	±5%	1/6P
R409	0113637	CF 8.2kΩ	±5%	1/6P
R410	0113655	CF 47kΩ	±5%	1/6P
R411	0113637	CF 8.2kΩ	±5%	1/6P
R412	0113659	CF 68kΩ	±5%	1/6P
R413	0113639	CF 10kΩ	±5%	1/6P
R414	0113639	CF 10kΩ	±5%	1/6P
R416	0113639	CF 10kΩ	±5%	1/6P
R417	0113639	CF 10kΩ	±5%	1/6P
R418	0113639	CF 10kΩ	±5%	1/6P
R419	0113639	CF 10kΩ	±5%	1/6P
⚠R420	1110607	FR 33Ω	±5%	RN1/4P
R421	0113292	CF 270Ω	±5%	1/2P
⚠R422	1123625	NF 220Ω	±5%	1/4P
R423LR	0113641	CF 12kΩ	±5%	1/6P
R424LR	0113635	CF 6.8kΩ	±5%	1/6P
R426LR	0113677	CF 390kΩ	±5%	1/6P
R427LR	0113625	CF 2.7kΩ	±5%	1/6P
R428LR	0113637	CF 8.2kΩ	±5%	1/6P
R429LR	0113627	CF 3.3kΩ	±5%	1/6P
R430LR	0113619	CF 1.5kΩ	±5%	1/6P
R431LR	0113615	CF 1kΩ	±5%	1/6P
R432LR	0113575	CF 22Ω	±5%	1/6P
R436LR	0113639	CF 10kΩ	±5%	1/6P
R437	0113639	CF 10kΩ	±5%	1/6P
R438	0113645	CF 18kΩ	±5%	1/6P
R439	0113641	CF 12kΩ	±5%	1/6P
R440	0113655	CF 47kΩ	±5%	1/6P
R441	0113631	CF 4.7kΩ	±5%	1/6P
R470LR	0113639	CF 10kΩ	±5%	1/6P
R471LR	0113627	CF 3.3kΩ	±5%	1/6P
R472LR	0113655	CF 47kΩ	±5%	1/6P
R473LR	0113619	CF 1.5kΩ	±5%	1/6P
R474LR	0113631	CF 4.7kΩ	±5%	1/6P
R475LR	0129652	CF 75kΩ	±5%	1/4P
R478	0113631	CF 4.7kΩ	±5%	1/6P
R479	0113639	CF 10kΩ	±5%	1/6P
R480LR	0113623	CF 2.2kΩ	±5%	1/6P
R481LR	0113635	CF 6.8kΩ	±5%	1/6P
R482	0113631	CF 4.7kΩ	±5%	1/6P
R483LR	0113653	CF 39kΩ	±5%	1/6P
R484LR	0113643	CF 15kΩ	±5%	1/6P
R485LR	0113657	CF 56kΩ	±5%	1/6P
R487	0113637	CF 4.7kΩ	±5%	1/6P
R488	0113639	CF 10kΩ	±5%	1/6P
R489	0113645	CF 18kΩ	±5%	1/6P
R490	0113591	CF 100Ω	±5%	1/6P

SYNBOL NO.	PART NO.	DESCRIPTION		
R491	0113651	CF 33kΩ	±5%	1/6P
R501LR	0113609	CF 560Ω	±5%	1/6P
R502LR	0113655	CF 47kΩ	±5%	1/6P
R503LR	0113621	CF 1.8kΩ	±5%	1/6P
R504LR	0113651	CF 33kΩ	±5%	1/6P
R505LR	0113677	CF 390kΩ	±5%	1/6P
R506LR	0113647	CF 22kΩ	±5%	1/6P
R507LR	0113647	CF 22kΩ	±5%	1/6P
R508LR	0113659	CF 68kΩ	±5%	1/6P
R600LR	0113629	CF 3.9kΩ	±5%	1/6P
R601LR	0113641	CF 12kΩ	±5%	1/6P
R602LR	0113627	CF 3.3kΩ	±5%	1/6P
R604LR	0113615	CF 1kΩ	±5%	1/6P
R605	0113617	CF 1.2kΩ	±5%	1/6P
R606	0113617	CF 1.2kΩ	±5%	1/6P
R607	0113617	CF 1.2kΩ	±5%	1/6P
R608	0113617	CF 1.2kΩ	±5%	1/6P
R609	0113617	CF 1.2kΩ	±5%	1/6P
R610	0113635	CF 6.8kΩ	±5%	1/6P
R611	0113639	CF 10kΩ	±5%	1/6P
R612LR	0113631	CF 4.7kΩ	±5%	1/6P
R613LR	0113687	CF 1MΩ	±5%	1/6P
R614LR	0113609	CF 560Ω	±5%	1/6P
⚠R615	1123627	NF 330Ω	±5%	1/4P
⚠R616	1123627	NF 330Ω	±5%	1/4P
R620LR	0113635	CF 6.8kΩ	±5%	1/6P
R621LR	0113623	CF 2.2kΩ	±5%	1/6P
R651LR	0113625	CF 2.7kΩ	±5%	1/6P
R652LR	0113625	CF 2.7kΩ	±5%	1/6P
R653LR	0113637	CF 8.2kΩ	±5%	1/6P
R654LR	0113641	CF 12kΩ	±5%	1/6P
R655LR	0113687	CF 1MΩ	±5%	1/6P
R656LR	0113639	CF 10kΩ	±5%	1/6P
R657LR	0113607	CF 470Ω	±5%	1/6P
R658LR	0113639	CF 10kΩ	±5%	1/6P
R659LR	0113631	CF 4.7kΩ	±5%	1/6P
R660	0113639	CF 10kΩ	±5%	1/6P
R661	0113655	CF 47kΩ	±5%	1/6P
R662	0113655	CF 47kΩ	±5%	1/6P
R663	0113639	CF 10kΩ	±5%	1/6P
R664	0113639	CF 10kΩ	±5%	1/6P
R665LR	0113629	CF 3.9kΩ	±5%	1/6P
R666LR	0113615	CF 1kΩ	±5%	1/6P
R670	0113637	CF 8.2kΩ	±5%	1/6P
R671	0113631	CF 4.7kΩ	±5%	1/6P
R701LR	0113657	CF 56kΩ	±5%	1/6P
R702LR	0113603	CF 330Ω	±5%	1/6P
R703LR	0113657	CF 56kΩ	±5%	1/6P
R704LR	0129609	CF 2.2kΩ	±5%	1/4P
R705LR	0129609	CF 2.2kΩ	±5%	1/4P
R706	0113657	CF 56kΩ	±5%	1/6P
⚠R707	1110629	FR 470Ω	±5%	RN1/4B
R708	1129607	CF 1.8kΩ	±5%	1/4P
R709	1129643	CF 33kΩ	±5%	1/4P
⚠R710	1110621	FR 100Ω	±5%	RN1/4B
R711	0113647	CF 22kΩ	±5%	1/6P
R712	0113671	CF 220kΩ	±5%	1/6P
R713LR	1119139	ME 4.7Ω	±10%	RN2B
R750LR	0113615	CF 1kΩ	±5%	1/6P
R751LR	0113601	CF 270Ω	±5%	1/6P
R752LR	0113653	CF 39kΩ	±5%	1/6P

SYNBOL NO.	PART NO.	DESCRIPTION		
R753LR	0113655	CF 47kΩ	±5%	1/6P
R754LR	0113663	CF 100kΩ	±5%	1/6P
R755LR	01132912	CF 220kΩ	±5%	1/2P
⚠R756	1123627	NF 330Ω	±5%	1/4P
R801	0129577	CF 470Ω	±5%	1/4P
R802	0129561	CF 100Ω	±5%	1/4P
R803	1119527	MO 330Ω	±10%	RN2B
⚠R807	1123625	NF 220Ω	±5%	1/4P
R808	0113623	CF 2.2kΩ	±5%	1/6P
R809	0113637	CF 8.2kΩ	±5%	1/6P
R810	0129573	CF 330Ω	±5%	1/4P
R814	0113599	CF 220Ω	±5%	1/6P
R815	0129573	CF 330Ω	±5%	1/4P
R817	0129609	CF 2.2kΩ	±5%	1/4P
R818	1129601	CF 1kΩ	±5%	1/4P
R821	1129615	CF 3.9kΩ	±5%	1/4P
R822	0113615	CF 1kΩ	±5%	1/6P
R823	1129605	CF 1.5kΩ	±5%	1/4P
R824	1129617	CF 4.7kΩ	±5%	1/4P
R826	0129577	CF 470Ω	±5%	1/4P
R827	0129561	CF 100Ω	±5%	1/4P
R901	0113615	CF 1kΩ	±5%	1/6P
R902	01132222	CF 27Ω	±5%	1/4P
R903	0113603	CF 330Ω	±5%	1/6P
R904	0113639	CF 10kΩ	±5%	1/6P
R906	0113623	CF 2.2kΩ	±5%	1/6P
R907	0113671	CF 220kΩ	±5%	1/6P
R909	0113687	CF 1MΩ	±5%	1/6P
R910	0113613	CF 820Ω	±5%	1/6P
R911	0113623	CF 2.2kΩ	±5%	1/6P
R912	0113639	CF 10kΩ	±5%	1/6P
R913	0113639	CF 10kΩ	±5%	1/6P
R915	0113575	CF 22Ω	±5%	1/6P
R916	0113575	CF 22Ω	±5%	1/6P
R917	0113639	CF 10kΩ	±5%	1/6P
R918	0113641	CF 12kΩ	±5%	1/6P
R920	0113651	CF 33kΩ	±5%	1/6P
R921	0113573	CF 47Ω	±5%	1/6P
R922	0113613	CF 820Ω	±5%	1/6P
R923	0113617	CF 1.2kΩ	±5%	1/6P
R924	0113627	CF 3.3kΩ	±5%	1/6P
R925	0113687	CF 1MΩ	±5%	1/6P
R926	0113647	CF 22kΩ	±5%	1/6P
R927	0113655	CF 47kΩ	±5%	1/6P
R928	0113649	CF 27kΩ	±5%	1/6P
R929	0113639	CF 10kΩ	±5%	1/6P
R930	0113639	CF 10kΩ	±5%	1/6P
R931	0113639	CF 10kΩ	±5%	1/6P
R932	0113663	CF 100kΩ	±5%	1/6P
R933	0113615	CF 1kΩ	±5%	1/6P
R934	0113639	CF 10kΩ	±5%	1/6P
R935	0113639	CF 10kΩ	±5%	1/6P
R936	0113639	CF 10kΩ	±5%	1/6P
R937	0113639	CF 10kΩ	±5%	1/6P
R938	0113647	CF 22kΩ	±5%	1/6P
R939	0129894	CF 10kΩ	±5%	1/4P
R940	0113639	CF 10kΩ	±5%	1/6P
R941	0113639	CF 10kΩ	±5%	1/6P
R942	0113663	CF 100kΩ	±5%	1/6P
R943	0113639	CF 10kΩ	±5%	1/6P
R944	0113615	CF 1kΩ	±5%	1/6P
R945	0113615	CF 1kΩ	±5%	1/6P

SYNBOL No.	PART No.	DESCRIPTION
D358	2397421	1SS133T
D360	2397421	1SS133T
D361	2337601	1S2473
D401	2337601	1S2473
D402	2337601	1S2473
D403	2337601	1S2473
D404	2337601	1S2473
D405	2337601	1S2473
D406	2337601	1S2473
D407	2337601	1S2473
D408	2337601	1S2473
D420LR	2337601	1S2473
D470LR	2337921	1K34A
D651	2337762	ERB12-01
D671	2337601	1S7473
D672	2337601	1S2473
D701	2337601	1S2473
D702	2337601	1S2473
⚠D801	2337461	S4VB20
⚠D802	2337461	S4VB20
D803	2337601	1S2473
D804	2337762	ERB12-01
D901	2337011	1S2076
D902	2337011	1S2076
D903	2337011	1S2076
D904	2337011	1S2076
D905	2337011	1S2076
D906	2337011	1S2076
D907	2337011	1S2076
D909	2337011	1S2076
D911	2337011	1S2076
D913	2397321	KV1260
D951	2337601	1S2473
D952	2337601	1S2473
D953	2337601	1S2473
D954	2337601	1S2473
ZD351	2337515	HZ6B-2
ZD352	2337122	HZ-6B
ZD401	2337612	HZ-3A2
ZD481	2337612	HZ-3A2
ZD701	2337587	HZ5C1
ZD801	2337555	HZ11B2
ZD802	2337563	HZ-12A-3
ZD803	2337122	HZ-6B
ZD804	2337122	HZ-6B
ZD805	2337122	HZ-6B
ZD806	23371882	HZ-24-2
ZD807	2337122	HZ-6B
ZD808	2337568	HZ12C-2
ZD809	2337562	HZ-12A-2
ZD811	2337555	HZ11B2
ZD901	2337612	HZ-3A2
D351	2398422	SLR34DC5
D481	2398422	SLR34DC5
D482	2398422	SLR34DC5
D483	2398422	SLR34DC5
D484	2339032	SLR-34URC
D485	2339032	SLR-34URC
D651	2339104	SLP-660C
D652	2339104	SLP-660C
D653	2339104	SLP-660C
D654	2339104	SLP-660C
D655	2339104	SLP-660C

VARIABLE RESISTORS

RT301	0158971	10kΩ-(B) (FM MPX VCO ADJ.)
RT401LR	0158975	22kΩ-(B) (PLAYBACK GAIN ADJ.)
RT402LR	0158973	100kΩ-(B) (BIAS CURRENT ADJ.)
R905	0158977	4.7kΩ-(B) (LASER DIODE OUTPUT ADJ.)
R908	0158973	100kΩ-(B) (FOCUS SERVO OFFSET ADJ.)
R914	0158973	100kΩ-(B) (TRACKING SERVO OFFSET ADJ.)
RV601LR	0189274	100kΩ-(C) (BASS CONTROL)
RV602LR	0189274	100kΩ-(C) (TREBLE CONTROL)
RV603	0189263	200kΩ-(Special W) (BALANCE CONTROL)
RV604LR	0158673	50kΩ-(B) (VOLUME CONTROL)
RV605LR	0189272	10kΩ-(B) (REC LEVEL CONTROL)

COLIS & TRANSFORMERS

L151	2136503	MW antenna coil
L152	2136504	LW antenna coil (for ES, VS, BK)
L250	2227889	Peaking coil
L420LR	2135626	Trap coil
L421	2227353	Choke coil
L422LR	2227991	Choke coil
L470LR	2137593	Low pass filter
L901	2137231	Choke coil
L902	2227907	Choke coil
T151	2136493	MW OSC coil
T152	2136494	LW OSC coil (for ES, VS, BK,)
T250	2155173	FM discriminator trans.

MISCELLANEOUS

JK101	2689382	4P terminal
JK102	2658391	DIN ANT. socket (for ZS)
JK102	2677911	FM antenna socket (for ES, VS, BK, KS)
JK501	2678348	4P US pin jack
JK701	2689381	Speakers terminal
JK702	2677593	Headphones jack
FL351	2789302	Fluorescent display tube
FL901	2789811	Fluorescent display tube
X351	2789161	Crystal oscillator
X901	2780031	Crystal oscillator
X902	2780041	Crystal oscillator
MF201	2135002	Cermic filter
MF202	2135002	Cermic filter (for ZS)
MF203	2135002	Cermic filter
MF250	2155152	AM ceramic filter
CT151	0283127	Trimmer capacitor 20PF
CT152	0283127	Trimmer capacitor 20PF (for ES, VS, BK)
CP101	2136941	Band pass filter (for ZS)
CP251	2136312	Anti birdie filter (for ZS)
CP352	0189032	Resistor array (100kΩ x 4)
CP353	0241892	Capacitor array (330PF x 7)
CP354	0189014	Resistor array (100kΩ x 7)
CP420	2137071	Coil
CP651LR	2137221	Low pass filter
CP801	1243901	CD 0.01μF ±100% 400V
MD101	2425561	Tuner pack (for ZS)
MD101	2425461	Tuner pack (except ZS)
⚠F801	2727893	Fuse 2A 125V (for US, CS, EW)
⚠F802	2727894	Fuse 4A 12.5V (for US, CS, EW)
⚠F802	2727582	Fuse T4A (for ES, VS, KS, ZS, SA)
⚠F802	2727748	Fuse T4A (for BK)
⚠F803	2727895	Fuse 1A 125V (for US, CS, EW)
⚠F803	2727198	Fuse T800mA (for ES, VS, KS, ZS, SA)
⚠F803	2727741	Fuse 800mA (for BK)
⚠F804	2727895	Fuse 1A 125V (for US, CS, EW)
⚠F804	2727198	Fuse T800mA (for ES, VS, KS, ZS, SA)
⚠F804	2727741	Fuse 800mA (for BK)
S351	2639682	Tact switch (P2/11)
S352	2639682	Tact switch (P3/11)
S353	2639682	Tact switch (P4/11)
S354	2639682	Tact switch (P5/11)
S355	2639682	Tact switch (P6/14)
S356	2639682	Tact switch (P7/16)
S357	2639682	Tact switch (P8/16)
S358	2639682	Tact switch (SHIFT)
S359	2639682	Tact switch (MEMORY)
S360	2639682	Tact switch (TUNING UP)
S361	2639682	Tact switch (TUNING DOWN
S362	2639682	Tact switch (P1/9
S363	2639682	Tact switch (FM) (for ES, VS, BK)
S364	2639682	Tact switch (MW/FM)
S365	2639682	Tact switch [LW/MW(AM)]
S366	2639682	Tact switch (AUTO/MONO)
S370	2627931	Slide switch (SPACING) (for US, EW)
S401	2628491	Slide switch (REC/PLAY SELECT)
S402	2600047	1 key push switch (TAPE SELECT)

SYMBOL NO.	PART NO.	DESCRIPTION		
R946	0113663	CF 100kΩ	±5%	1/6P
R948	0113647	CF 22kΩ	±5%	1/6P
R949	0113657	CF 56kΩ	±5%	1/6P
R950	0113591	CF 100Ω	±5%	1/6P
R951	0113639	CF 10kΩ	±5%	1/6P
R952	0113637	CF 8.2kΩ	±5%	1/6P
R953	0113675	CF 330kΩ	±5%	1/6P
R954	0113675	CF 330kΩ	±5%	1/6P
R955	0113663	CF 100kΩ	±5%	1/6P
R956	0113643	CF 15kΩ	±5%	1/6P
R957	0113635	CF 6.8kΩ	±5%	1/6P
R958	0113635	CF 6.8kΩ	±5%	1/6P
R959	0113643	CF 15kΩ	±5%	1/6P
R960	0113687	CF 1MΩ	±5%	1/6P
R961	0113663	CF 100kΩ	±5%	1/6P
R962	0113663	CF 100kΩ	±5%	1/6P
R963	0113639	CF 10kΩ	±5%	1/6P
R964	0113615	CF 1kΩ	±5%	1/6P
R965	0113651	CF 33kΩ	±5%	1/6P
R966	0113643	CF 15kΩ	±5%	1/6P
R967	0113625	CF 2.7kΩ	±5%	1/6P
R968	0113647	CF 22kΩ	±5%	1/6P
R969	0113663	CF 100kΩ	±5%	1/6P
R970	0113639	CF 10kΩ	±5%	1/6P
R971	0113631	CF 4.7kΩ	±5%	1/6P
R972	0113647	CF 22kΩ	±5%	1/6P
R973	0113663	CF 100kΩ	±5%	1/6P
R974	0113639	CF 10kΩ	±5%	1/6P
R975	0113639	CF 10kΩ	±5%	1/6P
R976	0129908	CF 39kΩ	±5%	1/4P
R977	0113575	CF 22Ω	±5%	1/6P
R978	0113575	CF 22Ω	±5%	1/6P
R979	0113591	CF 100Ω	±5%	1/6P
R980	0113611	CF 680Ω	±5%	1/6P
R981LR	0113663	CF 100kΩ	±5%	1/6P
R982	0113639	CF 10kΩ	±5%	1/6P
R983L	0129880	CF 2.7kΩ	±5%	1/4P
R983R	0113625	CF 2.7kΩ	±5%	1/6P
R984LR	0113637	CF 8.2kΩ	±5%	1/6P
R985L	0129880	CF 2.7kΩ	±5%	1/4P
R985R	0113625	CF 2.7kΩ	±5%	1/6P
R986LR	0129846	CF 100Ω	±5%	1/4P

ICs & TRANSISTORS

SYMBOL No.	PART No.	DESCRIPTION
IC201	23684312	AN278
IC251	2387321	AN7273
IC301	2368354	BA1330
IC351	23687412	μPB553AC
IC352	2369722	μPD1704C-531
IC353	2387421	AN6873N
IC354	2387611	BA6251
IC401	2301051	BA3416AL
IC402	2369201	HD14066BP
IC470	2387402	HA12045
IC471	23696112	BA6124
IC501	2367221	NJM4558D
IC601	2387564	TC9152P
IC651	2300761	NJM2068DD
IC701	2387531	STK4141 II
IC750	2387301	M5218P
IC901	2377631	TM5050
IC902	2377671	TM5060
IC903	23002212	NJM072
IC904	2367222	NJM4558DM
IC905	2389300	HD61404FD91
IC906	23001912	CX23035
IC907	2387441	HM6116FP-4
IC908	2300591	CX20T33
IC909	2387481	HD14053BP
IC910	2300761	NJM2068DD
IC911	2300761	NJM2068DD
FET901LR	2329721	2SK163-L
Q101	2328652	2SC1740LN(S) (for ZS)
Q102	2328805	2SK104F (for ZS)
Q151	2328652	2SC1740LN(S) (for ES, VS, BK)
Q152	2328652	2SC1740LN(S) (for ES, VS, BK)
Q153	2329582	2SA933(R) (except KS, ZS)
Q154	2329582	2SA933(R) (except KS, ZS)
Q155	2328652	2SC1740LN(S)
Q301LR	2329553	2SC2603EF
Q302	2329582	2SA933(R)
Q303	2329553	2SC2603EF
Q304	2329553	2SC2603EF
Q305	2329553	2SC2603EF
Q306	2329582	2SA933(R)
Q307	2329582	2SA933(R)
Q351	2329553	2SC2603EF
Q352	2329553	2SC2603EF
Q353	2329553	2SC2603EF (for ES, VS, KS)
Q354	2329553	2SC2603EF (for ES, VS, KS)
Q355	2329553	2SC2603EF
Q356	2329553	2SC2603EF
Q401	2329553	2SC2603EF
Q402	2329582	2SA933(R)
Q403	2329553	2SC2603EF
Q404	2329553	2SC2603EF
Q420LR	2329553	2SC2603EF
Q421LR	2329553	2SC2603EF
Q471	2329553	2SC2603EF
Q481LR	2329553	2SC2603EF
Q610LR	2329553	2SC2603EF
Q651LR	2329553	2SC2603EF
Q652LR	2317971	2SD1468
Q653	2329553	2SC2603EF
Q654	2329582	2SA933(R)
Q701	2329582	2SA933(R)
Q801	2317803	2SD1266(P)
Q802	2328969	2SB514AL(D/E)
Q803	2328652	2SC1740LN(S)
Q804	2317803	2SD1266(P)
Q805	2317823	2SD880(GR)
Q806	2328969	2SB514AL(D/E)
Q807	2328969	2SB514AL(D/E)
Q808	2328969	2SB514AL(D/E)
Q901	2327992	2SB562B
Q902	2329582	2SA933(R)
Q903	2328652	2SC1740LN(S)
Q904	2328652	2SC1740LN(S)
Q905	2328652	2SC1740LN(S)
Q906	2317739	2SD330(D/E)
Q907	2328969	2SB514AL(D/E)
Q908	2328652	2SC1740LN(S)
Q909	2328652	2SC1740LN(S)
Q910	2329582	2SA933(R)
Q911	2329582	2SA933(R)

DIODES

SYMBOL No.	PART No.	DESCRIPTION
D101	2337601	1S2473
D102	2337601	1S2473
D103	2337931	1K60R (for ZS)
D104	2337931	1K60R (for ZS)
D151	2339921	KV1236
D152	2339921	KV1236 (for ES, VS, BK)
D153	2337601	1S2473 (for ES, VS, BK)
D154	2337601	1S2473 (for ES, VS, BK)
D155	2337601	1S2473 (for ES, VS, BK)
D156	2337601	1S2473
D157	2337601	1S2473
D158	2337601	1S2473 (for ES, VS, BK)
D301	2337601	1S2473
D302	2337601	1S2473
D303	2337601	1S2473
D351	2397421	1SS133T
D352	2337601	1S2473
D353	2337601	1S2473
D354	2337601	1S2473
D355	2337601	1S2473
D356	2337601	1S2473
D357	2397421	1SS133T (for ES, VS, BK, KS, ZS)

Cabinet Chassis

SYNBOL No.	PART No.	DESCRIPTION
1	86914102	3 ϕ x 10 BT bind head screw (Main P.W.B., damper; CD mecha base, other)
2	86914252	3 ϕ x 25 BT bind head screw (buttom case)
3	3307401	Volume knob (BLACK)
	3307402	Volume knob (WHITE)
4	3307371	POWER button (BLACK)
	3307372	POWER button (WHITE)
5	4041621	Top case ass'y (BLACK) (for ES, VS)
	4041661	Top case ass'y (WHITE) (for ES, VS)
	4041623	Top case ass'y (BLACK) (for BK)
	4041663	Top case ass'y (WHITE) (for BK)
	4041622	Top case ass'y (BLACK) (except ES, VS, BK)
	4041662	Top case ass'y (WHITE) (except ES, VS, BK)
6	3802333	Lid (BLACK) (for BK)
	3802334	Lid (WHITE) (for BK)
	3802331	Lid (BLACK) (except BK)
	3802332	Lid (WHITE) (except BK)
7	3802353	Cassette lid ass'y (BLACK)
	3802354	Cassette lid ass'y (WHITE)
8	3802363	CD lid ass'y (BLACK)
	3802364	CD lid ass'y (WHITE)
9	3368882	Door open spring (L)
10	3368888	Door open spring (R)
11	3368887	Door open spring (L)
12	3368821	CD door wire
13	3368822	Cassette door wire
14	4567411	3 ϕ x 6 DT bind head screw (FL, P.W.B., net)
15	3902912	Oil damper
16	4469182	Cover
17	4469262	Spring L
18	4469252	Spring R
19	8691308	2.6 ϕ x 8 BT bind head screw (spring L, spring R)
20	3802291	Blind
21	3802302	Sheet
22	3307441	Function button (BLACK)
	3307442	Function button (WHITE)
23	3307391	Preset button
24	3307351	Tuning button (BLACK) (for ES, VS, BK)
	3307352	Tuning button (WHITE) (for ES, VS, BK)
	3307353	Tuning button (BLACK) (except ES, VS, BK)
	3307354	Tuning button (WHITE) (except ES, VS, BK)
25	3307392	Memory button
26	3307393	Shift button
27	3307361	Auto button
28	4040452	Clumper ass'y
29	4041641	Bottom case ass'y (BLACK) (for ES)
	4041681	Bottom case ass'y (WHITE) (for ES)
	4041642	Bottom case ass'y (BLACK) (for VS)
	4041682	Bottom case ass'y (WHITE) (for VS)
	4041643	Bottom case ass'y (BLACK) (for BK, SA)
	4041683	Bottom case ass'y (WHITE) (for BK, SA)
	4041644	Bottom case ass'y (BLACK) (for KS)
	4041684	Bottom case ass'y (WHITE) (for KS)
	4041645	Bottom case ass'y (BLACK) (for ZS)
	4041685	Bottom case ass'y (WHITE) (for ZS)
	4041646	Bottom case ass'y (BLACK) (for US)
	4041686	Bottom case ass'y (WHITE) (for US)
	4041647	Bottom case ass'y (BLACK) (for CS)
	4041687	Bottom case ass'y (WHITE) (for CS)
	4041648	Bottom case ass'y (BLACK) (for EW)
	4041688	Bottom case ass'y (WHITE) (for EW)
30	3802261	Operating button panel (BLACK)
	3802262	Operating button panel (WHITE)
31	3307431	Operation button (BLACK)
31	3307432	Operation button (WHITE)
32	3307453	CD door open button (BLACK)
	3307454	CD door open button (WHITE)
33	3307411	Push button (SHIFT)
34	3307412	Push button (MEMORY)
35	3307413	Push button (REPEAT)
36	3368891	CD open wire
37	3802281	Open button holder
38	3307421	C door open button (BLACK)
	3307422	C door open button (WHITE)
39	3368901	Cassette open wire
40	3368872	Spring
41	3307381	Push button (TAPE SELECT, DOLBY NR RIF)
42	4469222	Net (BLACK)
	4469221	Net (WHITE)
43	3907541	Switch cover
44	4567422	4 ϕ x 8 DT bind head screw (power transformer)
45	86994102	3 ϕ x 10 BT bind head screw (deck mecha, SP terminal, US pin terminal, DIN socket)
46	4567432	3 ϕ x 8 DT bind head screw (for US EW) (voltage select switch)
⚠ 48	2249631	Power transformer (for ES, VS, KS, ZS)
⚠	2249632	Power transformer (for BK, SA)
⚠	2249633	Power transformer (for CS)
⚠	2249634	Power transformer (for US, EW)
⚠ 49	2618053	Voltage select switch (for US, EW)
⚠ 50	00437932	Bushing (for EW)
⚠	3913006	Bushing (except EW)
⚠ 51	2748752	Power supply cord (for ES, VS, KS, ZS)
⚠	2749582	Power supply cord (for BK)
⚠	2749622	Power supply cord (for SA)
⚠	2700122	Power supply cord (for US, CS)
⚠	2718113	Power supply cord (for EW)
52	4028149	Unit mechanism ass'y
53	3802221	CD mecha base
54	4594961	Frote screw (unit mecha)
55	4584941	Screw (unit mecha)
56	4691991	Rubber
57	2588951	TN-21H-580 mecha ass'y (TAPE 2)
58	2588952	TN-21H-581 mecha ass'y (TAPE 1)
59	3307341	Deck button (BLACK)
	3307342	Deck button (WHITE)
60	2789692	MH counter
61	4686548	Counter belt
62	4582511	2 ϕ x 4 DT screw (MH counter)
63	4469311	REC spring
64	8741103	2 ϕ x 3 bind screw (REC spring)
65	4950952	Laser caution label (except US, CS)
66	4955682	Laser caution label (DEM) (for KS)
	4943884	Laser caution label (for CS)
	4944853	Danger label (for US)
66	4819232	Button lever shaft
67	4819072	2 ϕ x 7 screw (buton holder)

Unit mechanism

1	4028052	DC motor ass'y (slide motor)
2	8711103	2 ϕ x 3 pan head screw (DC motor)
3	3800341	Worm gear
4	3976432	Send gear
5	4418005	PS washer
6	4463701	Spring
7	4588991	Turntable
8	4561993	3 ϕ screw (turntable)
9	4594912	Center pin (B)
10	2523881	DC motor (disc motor)
11	2638901	Switch (RESET SWITCH)

SYNBOL No.	PART No.	DESCRIPTION
S403	2600049	1 key push switch (RIF)
S404	2600049	1 key push switch (DOLBY NR)
S601	2639682	Tact switch (PHONO)
S602	2639682	Tact switch (AUX)
S603	2639682	Tact switch (TAPE)
S604	2639682	Tact switch (CD)
S605	2639682	Tact switch (TUNER)
⚠S801	2600151	Push switch (POWER)
S901	2639152	Push switch (CHUCK)
S902	2639152	Push switch (CHUCK)
S951	2639682	Tact switch (PLAY/PAUSE)
S952	2639682	Tact switch (STOP/CLEAR)
S953	2639682	Tact switch (FF)
S954	2639682	Tact switch (BACKWARD SKIP)
S955	2639682	Tact switch (FORWARD SKIP)
S956	2639682	Tact switch (MEMORY)
S957	2639682	Tact switch (REPEAT)
S958	2639682	Tact switch (FB)
S959	2639682	Tact switch (TRACK/TIME)
	3802322	LED holder
	4573552	3 ϕ x 16 tapping bind head screw (radiation bracket)
	4567411	3 ϕ x 6 DT bind head screw (radiation plate)
	86914102	3 ϕ x 10 BT bind head screw (radiation plate)
	2727974	Fuse holder

Cassette Chassis

SYNBOL No.	PART No.	DESCRIPTION
12	4578285	2.6 ϕ x 10 DT bind head screw (switch)
for ACCESSORIES		
⚠	2667922	Siemens plug (for EW)
	2757528	FM antenna (except ZS)
	4023261	AM loop antenna ass'y
	3802462	Spacer ass'y

SYNBOL No.	PART No.	DESCRIPTION
1	4818991	Main base ass'y
2	4818992	Switch plate
3	4832521	Push button actuator
4	4823651	REC button lever (for TAPE 2)
5	4823661	PLAY button lever
6	4823671	RWD button lever
7	4823681	FF button lever
8	4823691	STOP button lever
9	4823701	PAUSE button lever
10	4818990	RWD lever
11	4819131	PAUSE lever
12	4819132	PAUSE lever spring
13	4819133	PAUSE stopper
14	4820214	Button lever spring
15	4820215	Sub chassis
16	4819007	Button lever spring
17	4819100	Button lever spring
18	4819008	Actuator spring
19	4819009	Auto lever
20	4819000	Auto lever spring
21	4820217	PLAY button lever spring
22	4826101	Leaf switch (Motor switch)
23	4820218	Switch actuator spring
24	4820219	Head panel (for TAPE 1)
	4831614	Head panel (for TAPE 2)
25	4819014	Head base (for TAPE 1)
	4819528	Head base (for TAPE 2)
26	4832412	Sensing plate ass'y
27	4820221	Head panel spring
28	4819006	PR stopper
29	4819017	Spring
30	4819529	E.H. spring (for TAPE 2)
31	4832522	Screw (pressure roller arm)
32	4820222	Pressure roller arm ass'y
33	4820223	Pressure roller arm spring
34	4820225	RF pulley arm spring
35	4832413	RF pulley arm
36	4832414	RF arm collar screw (RF pulley arm)
37	4820227	Belt
38	4831610	Metal guide
39	4820231	Flywheel ass'y
40	4819575	Reel P.W.B ass'y
41	4832415	Take up gear plate ass'y
42	4819020	TG plate spring
43	4832416	Take up roller gear
44	4819037	Spring
45	4832417	FF gear
46	4819033	Supply reel ass'y
47	4819034	Take up reel ass'y
48	4832421	Record safety lever (for TAPE 2)
49	4819032	Spring
50	4832531	Motor bracket
51	4819039	Motor rubber
52	4819533	Motor collar screw (motor)
53	4832532	Main belt
54	4820241	Mat

SYNBOL No.	PART No.	DESCRIPTION
55	4820242	Pack spring
56	4819587	P head (for TAPE 1)
56	4819050	R/P head (for TAPE 2)
57	4819541	Erase head (for TAPE 2)
58	4832402	Motor ass'y
59	4819063	2 ϕ x 3 tapping screw (pack spring)
60	4819068	2 ϕ x 4 tapping screw (metal guide, motor bracket)
61	4819607	2 ϕ x 5 bind tapping screw (metal guide, reel P.W.B. ass'y)
62	4819611	2 ϕ x 6 screw (for TAPE 1) (head base)
63	4819060	2 ϕ x 7 screw (R/P head)
64	4819600	Azimuth screw (R/P head)
65	4819544	2 ϕ x 8 cap screw (erase head) (for TAPE 2)
66	4819077	Washer (1.2 ϕ x 3 x 0.4)
67	4819078	Washer (1.55 ϕ x 3.8 x 0.5)
68	4832432	P washer cut (2.05 ϕ x 4 x 0.5)